行政院及所屬各機關出國報告

（出國類別：實習）

赴香港研習「虛擬 Call Center 平台發展設備」報告

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出國地點：香港
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報告名稱
　　　赴香港研習虛擬Call Center平台發展設備

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關鍵詞　香港,研習,虛擬Call Center,平台,發展設備

內容摘要　依據信人三字第90A3001067號函赴香港研習「虛擬Call Center平台發展設備」，期間自民國九十年五月十三日至五月二十日共計八天，實習虛擬客服中心平台技術與方案。此次研習係針對目前IP Call Center系統技術與新趨勢實習，其中主要的內容有Call Center的演進、IP Call Center系統架構、虛擬客服中心技術趨勢等，藉由此次實習深入討論獲取Call Center相關經驗以應用於本公司目前正積極開發之各種Call Center，更希望對IP Call Center資訊系統之規劃、建設能有所裨益，以提供完整順暢之客戶服務工具來協助有效提高客戶滿意度，加強客戶忠誠度，並強化服務管理效率以面對電信市場自由化之強大競爭壓力。

本文電子檔已上傳至出國報告資訊網

摘　要

　　依據信人三字第 90A3001067 號函赴香港研習「虛擬 Call Center 平台發展設備」，期間自民國九十年五月十三日至五月二十日共計八天，實習虛擬客服中心平台技術與方案。此次研習係針對目前 IP Call Center 系統技術與新趨勢實習，其中主要的內容有 Call Center 的演進、IP Call Center 系統架構、虛擬客服中心技術趨勢等，藉由此次實習深入討論獲取 Call Center 相關經驗以應用於本公司目前正積極開發之各種 Call Center，更希望對 IP Call Center 資訊系統之規劃、建設能有所裨益，以提供完整順暢之客戶服務工具來協助有效提高客戶滿意度，加強客戶忠誠度，並強化服務管理效率以面對電信市場自由化之強大競爭壓力。

目 錄

前　言

　　如何維持良好的客戶關係與有效開拓新的客源是電信市場全面開放後一個十分重要的課題，這其中直接與客戶接觸的客服中心(Call Center)扮演著主要的角色，大多數的客戶服務相關業務，如障礙申告、抱怨申訴、帳務查詢、業務諮詢、、等等，都可以透過電話、傳真、電子郵件(E-mail)、全球資訊網(WWW)、網頁共覽(Co-Browsing)、網路電話(VoIP)、或上述方式整合之方案，取得所需的相關資訊與服務。

　　透過優質的客服中心來提供完整且順暢之客戶服務，可有效提高客戶滿意度，加強客戶忠誠度，而強化服務管理效率可面對電信市場自由化之強大競爭壓力。此次出席自民國九十年五月十三日至五月二十日共計八天之「虛擬 Call Center 平台發展設備」，實習虛擬客服中心平台技術與方案，針對目前客服中心平台系統技術與新趨勢研習，其中主要內容有 Call Center 的演進、IP Call Center 系統架構、虛擬客服中心技術趨勢等，藉由此次實習深入討論獲取 IP Call Center 相關經驗以應用於本公司目前正積極開發之各種 Call Center，更希望對 IP Call Center 資訊系統之規劃、建設能有所裨益，以提供完整順暢之客戶服務工具來協助有效提高客戶滿意度，加強客戶忠誠度，並強化服務管理效率以面對電信市場自由化之強大競爭壓力。另外，充分利用 IP ACD Server 最新技術，提供多種之客服管道，亦是未來客戶服務中心建置趨勢。

　　此次會議係依據信人三字第 90A3001067 號函辦理，其行程安排如下：

期間	主題
5 月 13 日	去程
5 月 14~16 日	IP-Centric CallCenter 技術研習
5 月 17~19 日	Avaya IP CallCenter 技術研習
5 月 20 日	返程

　　本報告分為五章。第一章針對 CTI-Based 客服中心做一概述；第二章係簡要說明網際網路客服中心之功能；第三章為 Call Center 平台技術實習資料；第四章闡述客服中心未來方案，針對客服中心的演進、整合技術、客戶關係管理等方面進行探討；最後一章為本案之實習心得。

第一章 客服中心概述

客服中心(Call Center)已成為今日各行各業致勝的關鍵,尤其像金融、電信、資訊、旅遊等服務導向的行業,一個架構完善且功能強大的 Call Center 不但可提升公司的形象、提高客戶對服務的滿意度、留住既有的客戶,更可協助過濾出潛在客戶,主動行銷,擴大市場佔有率。然而,要獲致這些成效,必須仰賴目前電子資訊業界最熱門領域之一的「電腦電話整合(CTI)」技術,圖1-1 即是一個 CTI-based 客服中心系統架構:
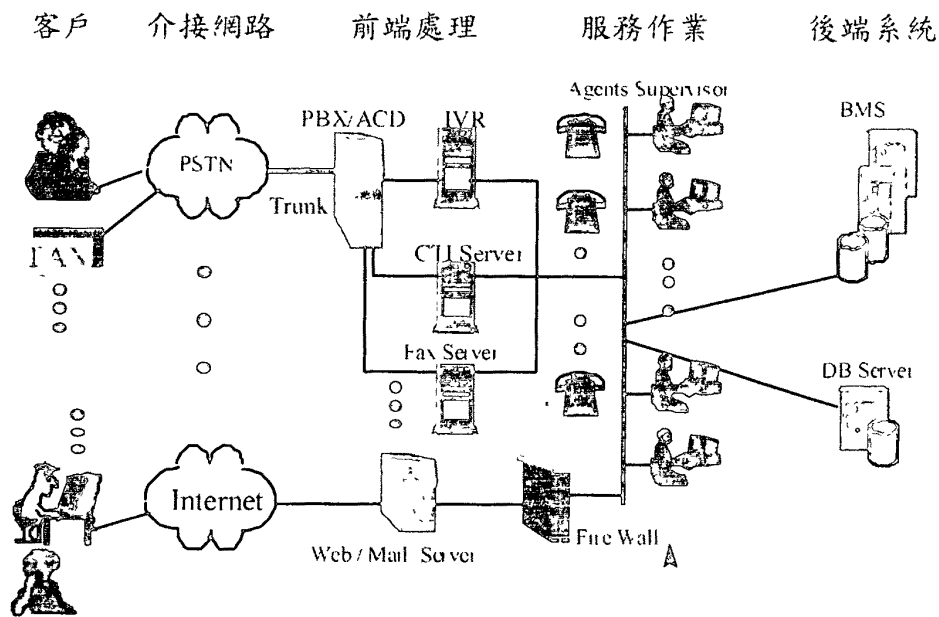

圖 1-1 客戶服務中心(Call Center)架構

運用 CTI 之技術,Call Center 可將電話系統、電腦網路、客戶資料庫、後端系統及客服人員做完整、有效率之結合,提供客戶快速、主動、全面及高品

3

質之整體服務。

　　然而時至今日，傳統電信(Telecommunication)領域正朝著服務整合、資料密集的方向邁進，大量的新技術與新方法相繼被提出，而 IP Telephony（利用 Internet Protocol 來傳遞語音對話的技術）應可說是這些技術中最重要的一種，原因有二：第一、其低費率的特性獲得電信市場的重視；第二、IP Telephony 奠基於 Internet 技術上，為一相當有彈性且低成本、高效率的方案，受到電信服務提供者與設備供應商的青睞。所以在 Call Center 方面， VoIP 可帶給 Call Center 的好處除了容易做到 CTI 的功能外，也可讓公司在毋須負擔傳統長途電話通話費用的條件下，建立地域分散的 Call Center (即 Virtual Call Center)。舉例而言，公司可依客服人員之專業為基礎設計來話路由，當客戶有特殊問題待解決時，則將來話轉至最適合的 Call Center 處理。

第二章 網際網路客服中心概述

Internet Call Center 提供單一的架構以處理聲音與 Internet 方面的客戶服務,讓客戶面對的人機介面都是一樣的,它將客戶所需要的服務,透過一個綜合佇列(Universal Queue)做分配,該佇列處理 Call Center 內所有的服務方式,如同處理事件(Event)一樣,即使使用不同的工具(如 s/w-ACD、IVR、e-mail、chat、VoIP(Web-dial)、Co-Browsing 等),都是以共通的方式溝通。Internet Call Center 支援多種 Internet 之工具,如圖 1 所示:
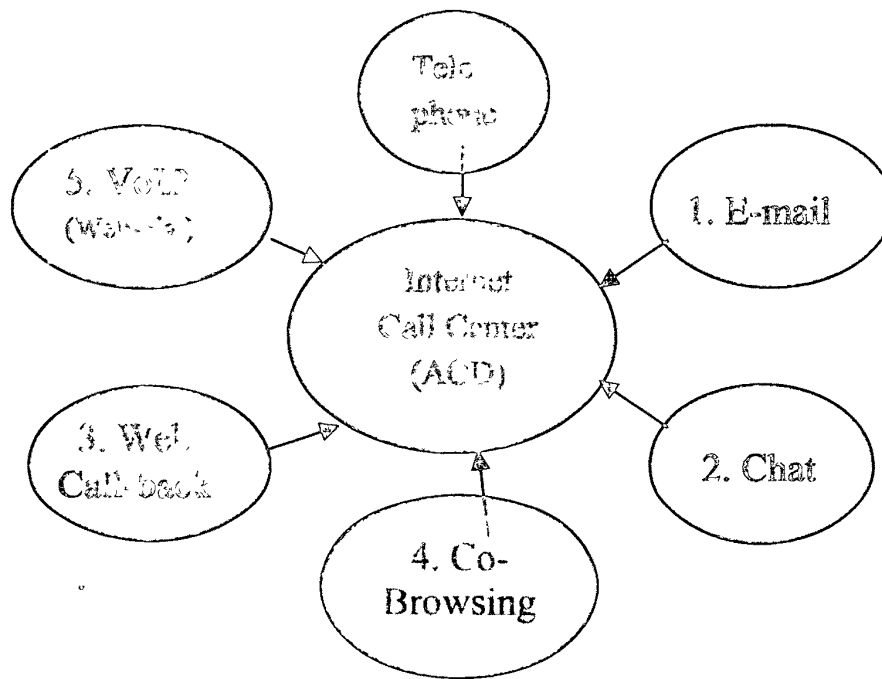

圖 2-1 Internet Call Center 方案

1. 電子郵件(E-mail):值機員回覆客戶的電子郵件,和傳統的電話一樣,

能表達對客戶的關懷。電子郵件系統可以自動回覆，也可以(或者)根據客戶連絡中心管理者定義的業務規則定義的方式回覆。

2. 文字閒談(Chat)：可以經由 Web 瀏覽器即時性地以文字為溝通橋樑。Web 的使用者可以在瀏覽器中鍵入自己的問題，並且可以看到來自值機員的立即回覆。

3. 留電回叫(Web Call Back)：提供客戶瀏覽一家公司的 Web site 時，可以要求值機員立刻或者安排其他時間留電回叫。

4. Web 導引(Co-Browsing)：值機員與客戶的 Web 瀏覽器自動同步，並且同時在 Web 上搜尋資料。值機員也可以協助客戶學習如何在一個 Web site 找到解決辦法，或者讓客戶瞭解使用上的特色。

5. Web-dial (Voice over IP)：Web 的使用者可以使用標準的網際網路電話軟體，經由自己的電腦與值機員對話。

Internet Call Center 的優點有：

1. 改變客戶服務的方式：將一個客服中心轉型為一個 Internet Call Center，對於公司的經營方式確實形成衝擊，但提供多樣化的客服管道是公司面臨競爭時一個極為重要的武器。

2. 給客戶一致的服務：無論何時客戶透過電話、電子郵件或者 VoIP 與 Internet Call Center 聯絡，值機員可以立刻取得該

客戶的歷史資料。也就是說，客戶每次與 Call Center 聯絡，都有前後一致的感覺。

3. **節省客戶服務的成本**：整合架構（Framework）將所有的連繫工具整合成單一的基礎結構。如此一來，可以削減分開處理電子郵件與 Web 連繫中心的需要與花費

4. **提昇 Agent 的產能**：將數種服務工具混合到一個綜合序列，可以增加值機員的工作效能。一位值機員可以立刻處理即時性的服務要求(例如，來電或網路上交談)，當空閒時可以處理沒有時間性的服務要求(例如，電子郵件)。

5. **增加交叉銷售的機會**：客戶與公司業務接觸的方式擴增了，相對地，公司獲利的機會也增加了。例如，Internet 管道的服務方式，吸引了原先愛好以電腦讀寫的使用群。

第三章 Call Center 平台技術實習資料

3.1 IP-Centric CallCenter 技術資料(參考附件一~四)

一、CosmoCom Scripting (附件一)

內容有: Introduction to CosmoCall Universe and Scripts
CallData and Line and CCLEvent Objects Events and Methods
TCS Scripts
ICS/TCS/MCS Scripts
Optional Parameters and Integration Points

二、Programming for Integration and Customization (附件二)

內容有: Introduction to CosmoCall Universe and the COM objects
Setting up the development environment
Creating an Agent Assistant
Pass one parameter off to a COM compliant Database (CRM)
Integration Points
The CosmoCall Universe COM objects, their events, and methods
CosmoCall Agent COM Model
CosmoCall Statistics COM Model
StatSvc
CosmoCall Administrator COM Model
Design your own Agent GUI
Integration Examples
Integration techniques
Testing and Debugging

三、Unify Legacy Call Centers (附件三)

內容有: Evolution strategy for Legacy Call Centers
Seamless Enterprise Hybrid Contact Center
Load-Balancing vs. SEHC-C

四、CosmoCall Universe Product Roadmap (附件四)

內容有: CosmoCall Universe 3.3
CosmoCall Universe 4.1

3.2 Avaya IP CallCenter 技術資料(參考附件五~七)

一、CentreVu Internet Solutions (附件五)

內容有: Overview
Features
Topology
Structural Concept
Configuration Requirements
Connectivity
R4.2 Change Description
What's new in R4.3
Installation
Administration
Hands-on Exercises

二、DEFINITY IP Solutions (附件六)

內容有: VoIP Trunking Connectivity
IP Trunk Benefits
IP Trunk Management
IP Solution Sets
End-to-End IP Solution

三、Enterprise Class IP Solutions (附件七)

內容有: Enterprise eBusiness Environment
Business-driven Enterprise Strategy
Multi-Service Architecture
Two Implementation Approaches
LAN-based Telephony
IP-enabled PABX
Telephony-Ready Multi-Services Network
ECLIPS Family

第四章 客戶中心未來方案

4.1 客服中心之演進

傳統的 Call Center 主要目的為服務以電話撥進 Call Center 的客戶，確保其透過電腦與電話相關設備(PABX、IVR、CTI、IR、Dailer、CRM 及 Telesales 等)之機制，讓每通通話均能有效的分配到最適宜之客服人員，以提供最佳之服務。現在，客戶與客服人員除了透過電話進行互動外，尚可透過 Internet 線上文字交談(Web Chat) 、網頁瀏覽(Co-Browsing)、網路電話(Internet Phone)、電子郵件(E-Mail)及傳真，甚或透過行動通訊上網來取得或提供網路通訊及電子商務交易服務(如線上購物、網路下單等)。所以，建立一套將所有互動通道整合及透過系統整合介面取得企業資訊服務之整合性 Call Center 架構，為 Call Center 演進之重要課題。

4.2 客服中心整合技術

Call Center 目前之趨勢已經不再侷限於某一類的服務，而是可以支援更廣泛的整合性服務，其主要的優點是，將 Call Center 的各部分(如資料庫、多個交換機、分散在不同地區的 Call Center，以及通訊工具等)整合成一套系統，此項整合改進了耗時的軟體開發時間、複雜的維護工作，以及未來升級技術會面臨到的瓶頸，這其中以互動管理整合架構為重要的議題，除了前述 Internet Contact Center 外，以 Enterprise Routing、Network Routing、Outbound Contact 及 Workforce Management 等最為重要。

Enterprise Routing 方案乃基於各企業自己的標準，依客戶所需要的服務，

找到最適合的 Agent 處理。來電處理是根據即時的統計資料、儲存的客戶資料、定義好的客戶業務規則與業務現況，將客戶來電、電子郵件與 Web 做密切的整合，所有來自客戶所需要的服務，全被當作"事件"處理，都放在一個綜合序列（Queue）中，依照事先定義好的業務規則做工作分配。此方案記錄著每位 Agent 的技能與技能等級之概況，所以客戶的需求都可以分配給目前空閒的最佳人選處理。Enterprise Routing 方案的優點有：一、提昇客戶滿意度與忠誠度(第一時間就可以將來電分配給適合的 Agent，可以減少客戶等待的時間，同時也可以降低客戶的沮喪感)；二、增加銷售機會與營收(統計分析出重要的客戶，藉著交叉銷售與向上銷售的方式，可以增加尚未開發的商機) ；三、減少花費(將客戶來電接給最恰當的 Agent 處理，可降低來電轉接錯誤與來電的通話時間)。

Network Routing 方案可以將幾個 Call Center 及所有的 Agent 視同一個 Virtual Call Center。依據來電的相關資訊，或者是資料庫查詢出的資訊，來決定適合的路由，即每通來電皆可依照 Agent 的語言專長，或者對某項產品的專精，作話務上的分配，找出最適合應答的 Agent，以滿足客戶之需求，更能滿足個人化的互動。相似技能的 Agent，雖然分散在不同的地區，仍然被視為在同一個虛擬的服務部門。此方案有兩項好處：客戶總是由最適合的 Agent 為他服務，客戶來電平均分攤到所有不同地區的客服中心。Network Routing 方案的優點有：一、降低免付費電話的費用(直接從傳輸網路上決定客戶來電之分配，可以減少客戶來電由一站轉到另一站)；二、改進客戶來電的回應時間(客戶來電平均分散到不同的客服中心，可以使得各個客服中心之話務量不至於忽高忽低，而能維持平穩的通話量)；三、提高 Agent 的工作效能(客戶來電都平均分配，且來電都會轉給最適合的 Agent 接聽，所以 Agent 的工作效能也跟著

提高)；四、降低管理花費(分散在不同地區的 Agent，如同在同一個 Virtual Call Center 工作，降低了管理者在管理上的花費)。

Outbound Contact 方案讓公司可以根據特定的條件(姓名、區域號碼、、、)，從客戶資料庫產生撥號名單，同時執行多樣的外撥工作，且外撥工作可以有多個撥號名單。而撥入電話與外撥工作混合在一起，外撥電話的數量通常依據進話量的多寡來決定，這樣人員的配置及混合訓練 Agent 的附加好處，提昇了 Agent 的工作效能。此方案的優點有：一、保障基本投資(這一點與硬體 Dialer 不同)；二、提昇 Agent 產能與增加公司營收(具備撥入與外撥混合的特色，所以當外撥工作與撥入電話互為消長時，值機員變得更有效率)；三、增進客戶的滿意度(可自訂個別的外撥活動，預知客戶未來的問題、需要與變更，從各方面主動與客戶連繫，可留給客戶既有工作效率又善體人意的印象)。

Workforce Management 方案是 Call Center 管理者運用排班管理系統分析客戶與中心互動的歷史統計資料，可以準確地預測客戶所需要的服務，並建立適當的人員工作日程表，使 Call Center 的服務品質，能有效率地達到期望的水準。此方案的特色是可以準確地預估工作量、簡化複雜的工作排程、提供中心的即時資訊。由歷史資料可以預估未來所需要的人員，進而產生一套模組，根據該模組讓管理者能夠準確地預測 Call Center 的工作量。管理者也可以指定希望達到的服務等級，或者其他主打業務，作為預估人員配置的依據。要將 Agent 個別的技能與喜好都列入考慮，又要符合特定的業務目標時，排程的工作就變得複雜了，排班管理系統可以簡化複雜的排程工作。Call Center 每天工作排程與業務目標的執行結果，管理者經由此解決方案能得知最新狀況。當運作出問題時，管理者會接到警告的訊息，並且有機會轉變資源分配，以回復原來的工作效能。Workforce Management 方案的優點有：一、提昇客戶服務的層次與一

致性(應用強有力的演算法,為 Agent 產生多種技能組合,以滿足客戶的複雜需求,而客戶服務的層次與一致性也增加了);二、提昇 Agent 的滿意度與向心力(人員配置得更準確,表示公司處理客戶的順序與工作量的管理都更有效率,Agent 可以運用他們最熟練的技能,且可以處理多樣的工作,Agent 滿意,公司人員的流動率也跟著降低);三、降低人員開支與總營運的費用(此方案可以在適當的時間將資源運用在適當的工作上,如此可以降低公司薪金總額的開支,排班管理系統免除了以往以繁瑣的人工方式預測工作量、排定工作日程以及產生報表,在管理上既省時又省錢)。

4.3 客戶關係管理與自動化處理流程

現今的企業已認知客戶為不可忽視的要素,迫使企業採用以客戶為中心的經營策略及多樣化的行銷服務管道(如網路行銷的介入、服務方式之變更及其挾帶而來的多樣且大量的客戶資訊),加重了企業經營的複雜性。因此,訂定企業之客戶關係管理(Customer Relationship Management,CRM)流程及建立一套架構完整的客戶管理資訊系統以為因應,為目前確保客戶不流失,並使客戶與公司同時成長之不二法門。發覺潛在客戶、提高客戶滿意度及忠誠度,儼然已成為網路知識經濟時代最基本的要求,每個客戶與公司之互動的成功與否,決定了客戶與公司是否維持良好的關係,這種互動關係已經從過去的交易互動,轉變為關係互動;公司必須針對客戶的特性如年齡層、性別、從事行業、購買習慣等加以分類,並完整的建立其客戶關係之資訊,進而規劃出此客戶於本公司成長週期(Customer Life Cycle)中每個階段之所需為何。在客戶尚未提出要求時便能精準的瞭解客戶之需求並主動服務,不但滿足了客戶需求,也即時

的使公司獲利。

客戶關係管理是一個必須以資訊完整架構為基礎的經營策略，它對市場行銷(Marketing)、銷售(Sales)及客戶服務支援作業(Customer Support)予以自動化的管理。透過客戶關係管理提供了制度，可以協助公司利用客戶資訊精確的瞭解自己在市場上的優勢，不但作為經營決策之支援系統，並可以透過對各種銷售、服務作業之合理化、效率化、因此強化了客戶互動管理，進而更改善公司客服資訊支援系統之品質及效率。這其中又以客戶互動管理流程自動化最為重要,它包括了幾個部份：一、業務行銷(由市場分析、規劃、區隔、活動推展、篩選客戶名單、銷售執行及控管如追蹤銷售進度到業績達成率分析等整體作業流程自動化，有助於目標行銷與關係行銷之執行)；二、客戶支援(透過各種輔助支援工具，迅速提供客戶所需資訊及高品質且個人化之服務，從主動的客戶關懷到抱怨申訴、診斷、資料查詢、警戒通報及自動提醒等自動化流程)；三、派工支援(以最省時且有效率的方式派遣業務或工程人員到場銷售、安裝或維修。其中將產品資訊、採購記錄、維修合約與等級、工作時間表、責任區域劃分、維修費計算、工作內容指派及施工進度表追蹤加以整合，以提供適時、適地、適人之即時服務支援)。

第五章 實習心得

　　客服中心(Call Center)可說是中華電信在市場競爭上的利器，電信研究所在總公司的指導與各分公司的支持下，順利的協助各分公司分別建設其客服中心，如行動通信 0800-080090、數據通信 0800-080412、國際分公司 0800-080100、北中南分公司 123 等。這其中研究所主要是負責系統層面，無論是 PABX、客戶服務語音、客服資訊相關系統、CTI、錄音、統計報表、、、等等，均需掌握得宜才能有效整合，因此研究所必需在技術上著力並居區域領先地位，才能為中華電信建設高效能的客服中心系統。

　　要讓中華電信公司的客服中心在系統功能與服務品質上居領先的地位，有必要將目前以電話(Phone)服務為主之客戶互動管道擴增為亦俱備其他各類溝通管道互相整合(E-mail、Fax、Chat、Co-Browsing、Do-It-by-Yourself、IP Telephony、WAP 等)之客戶連繫中心，以提供彈性服務通道、擴大客戶服務群，進而強化系統架構、提高服務效率。而這些系統建置技術與客服營運經驗於將來中華電信民營化後，可以運用在協助異質企業(如中小企業)建設其客服中心之最佳方案。

　　IP Telephony 技術已成熟，語音壓縮技術、網路傳輸機制以及軟體、機線設備等產品均已準備就緒。未來是否與傳統電話分庭抗禮仍不得而知，但在客服中心的規劃上需將其看做一個新的且重要的客服進線管道或內部話務管道，此次研習的技術在未來中華電信建設 IP-Based 客服中心時值得參考且運用。

CosmoCall University
Certification Course 301
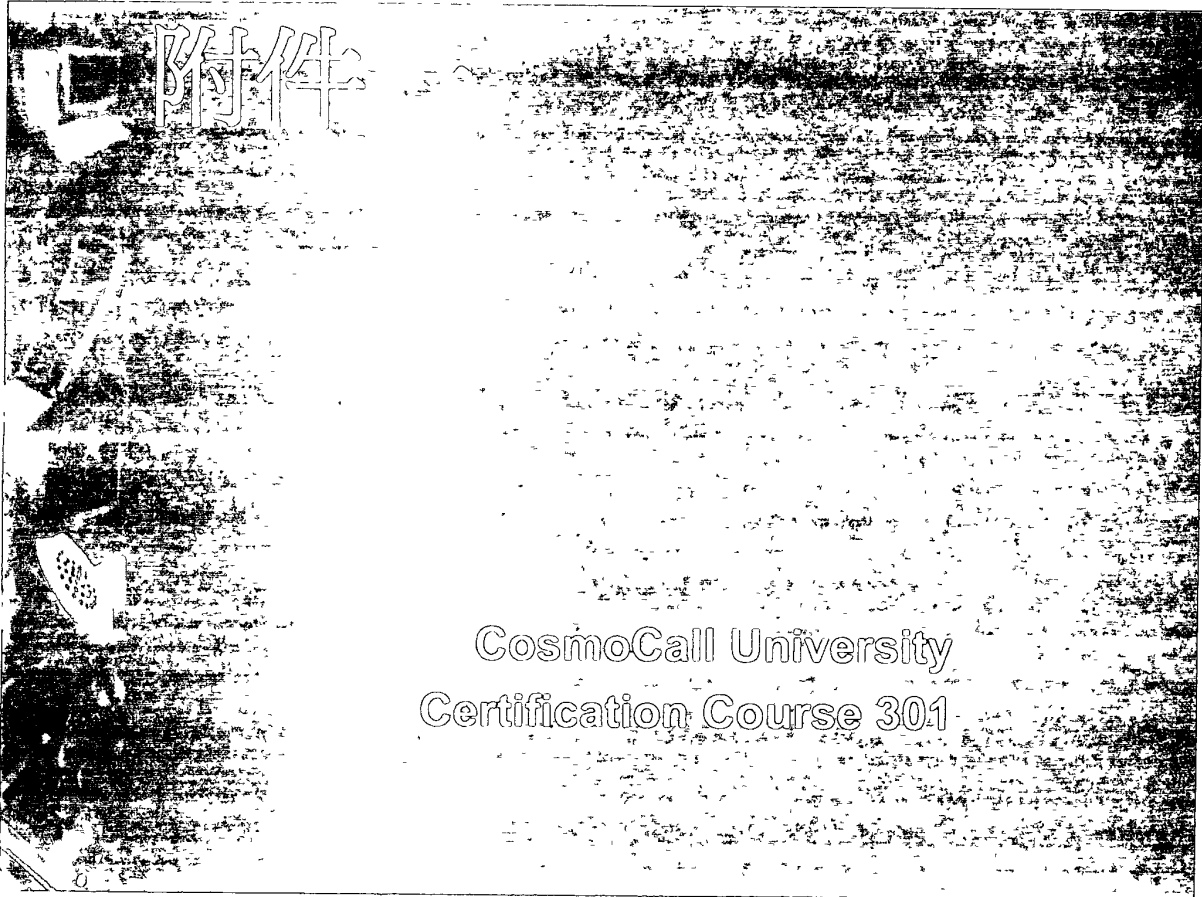
Target Audience

Target Audience: Beginning to
intermediate VBScript programmers who
need to write ICS and other CosmoCall
Universe scripts, No prerequisite.

This is a 2 day course covering the
creation, testing and debugging of scripts
written for CosmoCall Universe.

|--|

Agenda

Introduction to CosmoCall Universe and Scripts
- How does Universe work?
- How do scripts work in Universe?
  - The CosmoCall EVENT flowchart
  - Supertonics scripts

❖ CallData and Line and CCLEvent Objects Events, methods and properties
- How to test it.
  - Using SimPhone to test scripts
  - Enabling the VBScript STOP statement
  - Error handling

Agenda

TCS Scripts
- IVR
- Examples
  - Build your own
  - Voicemail
- PSTN Digital Incoming call
  - DNIS and ANI, Line.wink
- IVR Timeout
- PSTN call rejected
- Music On Hold while in queue
- Music on hold

1-2

Agenda

- ICS/TCS/MCS Scripts
  - Call Arrival
  - No Agent Response
  - In Queue Timeout
  - Pickup Timeout
  - Transfer Timeout
  - *NEW*Call Terminated Script
- Optional Parameters
- Integration Points
  - Database lookup at key script statements
  - More Error handling

Introduction

- CosmoCall Universe and Scripts
  - How does Universe work?
  - Calls behave according to events that are triggered in Universe, most of these events can be linked to scripts to further affect the behavior of calls.
  - Some events/scripts are for particular communication types: IVR – Telephone, No Agent Response – Web, others are common to all types of communication: Call arrival – Telephone or Web, In-Queue Timeout – All call types:Telephone, Web, messages.

1-3

Introduction

The CosmoCall EVENT flowchart

There are 16 events in CosmoCall Universe. 10 can be linked to scripts, only one script may be assigned to an event at a time.

You can add scripts to CosmoCall Universe that are not linked to any event or telephone connection server; ex. Constants and global variables, these values will be placed in memory and available to all scripts.

Scripts are added through the CosmoCall Administrator program: scripts are subroutines.

The CosmoCall EVENT flowchart

CosmoCall Universe Flowchart of Call Events

1-4

Object Routing Engine/Call Matcher

PSTN Call Rejection scripted event or No-agent return (ICS)

#1

Begin music on hold ------- Rejected ►

Accepted

Waiting for agent pickup — Timeout ► In Queue Timeout scripted event

Rejected

Agent pickup — Timeout ► Pickup Timeout scripted event

OK

In Call — Hold ► Music on Hold scripted event

◄- Transfer -

OK (new agent) or rejected (same agent)

Hangup

◄- Timeout - Wait for Agent

#1 ► Done

Legend
Gray shaded boxes=scripted event
White boxes=non-scripted event

Glossary
ICS=Internet Connection Server
TCS=Telephone Connection Server
CAS=Channel Associated Signaling

Scripts

- **Supertonics scripts**

  These scripts ship with CosmoCall Universe and are excellent examples of fully integrated and customized scripts. We will learn from these scripts.

- **Write your own scripts**

  You will write your own scripts today and tomorrow, test and debug them and take them with you.

1-5

Scripts

- IVR: press one for (x), press two for (xx)
- Call arrival: assign call to a default queue
- (PSTN) Call rejected: Voicemail
- In Queue Timeout: Would you like to leave a message or continue to wait for a service representative. Or strip skill(s) and resubmit call.
- Music on hold: Play wav files-music & "your call is important to us".

Call Termination Event/Script

An additional script has been added to the system that executes at call termination, allowing another open point in the call flow to do integration or to modify call treatment.

This script has an effect on rejected and terminated calls of any media type.

Call Rejection Script Enhancement: If a call rejects upon its initial offering to the Object Routing Engine (ORE), a customer-definable Call Rejection script can be optionally run.

Customer-definable Call Rejection script

This new script modifies "CallSetName" and the call immediately exits the script. This causes the call to immediately re- enter the same or a different queue, based upon business set-up (For example, if there are no CSRs available with required skills for the call, offer the caller the option to speak with someone else possessing similar or less than the required skills to service the call.) If the call is re- submitted to a queue, queue specific settings for "in queue time out" are applied to the call. This call termination script enhancement also adds the ability to terminate the call upon exiting the script in order to prevent the call from being re submitted to the queue.

Subsequent events

Users must define subsequent events upon call termination (i.e.: relate an IVR or chat message to the caller.)

Call Termination Script Enhancement: When a call exits wrap-up mode, a customer-definable Call Termination script associated with this event may be invoked. For example, statistics concerning the quality of the call or customer information, as defined by the business, may be written to a third party database or Customer Relations Management Package.

Events, methods and properties

- Objects have Events, Methods and Properties associated with them.
- They can react to events, utilize methods to get or set properties.
- Different objects work with different types of calls.
- VB Objects are used in scripts to react to a call and change the routing, prioritization, or information attached to the call.

CallData Object

CallData works for all call types
- CallData.callsetName
- CallData.AddskiII/RemoveSkill
- CallData.SkillsCount/Skill
- CallData.Option
- CallData.CallerName/CallerURL/CallerMessage
- Many more – see readme addendum U3.3

Line Object

- Line only works for telephone calls
  - Call Line.ANI/DNIS
  - Call Line.Disconnect/Dial
  - Call Line.ClearDigits/GetDigits
  - Call Line.PlayWave/RecordWave
  - And many, many more.
- Analog lines and ISDN automatically get callerID, ANI and DNIS data. With a T1 or E1 line, the GetAniData script obtains this information from the central office.

CCLEvents Object

- CCLEvent works for all call types

  CCLEvent.Name="ScriptName"

  CCLEvent.Status

  (0=ok,3=no agents,7=invalid queue)

  CCLEvent.Mediatype

  (0=Chat,1=PSTN, 2=Email)

1-9

Testing scripts

How to test it.

Using SimPhone to test TCS scripts

Playing a wav file is the easiest way to determine where in the script you are. SimPhone allows you to test TCS scripts without attaching PSTN trunk lines to a TCS.

Running the PSTN Connection server as a program instead of a service will eliminate the need to use expensive Dialogic cards to test TCS scripts.

Edit the scripts one line at a time and test, this way if there is an error you will immediately know which line of code has caused the error and can correct it quickly.

Testing scripts

How to test it.

Enabling the VBScript STOP statement

You must give the windows account running the test TCS the right to "Debug Programs".

To enable the stop codes in VB see MS KB article

PRB: VBScript 'Stop' Statement Does Not Start Script Debugger). This should be done for test systems only, it would "STOP" a production system on error!

Error handling

Errors will kill a script, it may not run at all –ex. IVR scripts won't play wav files if errors exist anywhere in script! Remember one line at a time and test!

Scripting Best Practices

- ❖ Make ALL scripts modular, ex. Make a **separate** constants script. All you have to do is add **the** script in the CosmoCall Administrator, **not even** assign it to an event, and all constants **will be** read into memory.

- Write a voicemail script and call it from **every** other script that requires voicemail! Ex. **IVR** choice #3, PSTN call rejected, In queue **timeout**, Music while in queue (exit choice), etc.

Scripting Best Practices

- For different language wav files and **folders use a** prefix: En_ for English, Fr_ for French, **etc.**

- ALWAYS give a way out, **use termination** characters etc.

- Document revision to **scripts, message in wav** files, logic behind **clauses in code. Etc.**

- Test each script for each call **type it may react to,** ex. In Queue Timeout – Web, Telephone, Messages.

- Test for in range data, **out of range data, garbage** data, error handling, **expected output, etc.**

TCS Scripts

IVR
   Examples
      Voicemail
      Supertronics
      Build your own
   PSTN Digital Incoming call
      DNIS and ANI, Line.wink
   IVR Timeout
   PSTN call rejected
   Music On Hold while in queue
   Music on hold

TCS Script Exercises

Set the ANI/DNIS for a call and assign to a queue.

Choose a language and play all wav files in that language for the rest of the call.

Add skills and remove skills.

Count skills and evaluate skills.

Route a call to one CSR who is unavailable then offer it to a larger group, then leave a message for the original CSR!

TCS Script Exercises

Add a choice to leave a voicemail in the IVR script.

PSTN call rejected/Call Termination script

    Determine when which is used and how.

    Assign a call to another queue.

        How are reports affected by this?

    Play a message for a Web call / for a telephone call.

    Alert a supervisor after call leaves wrap-up.

TCS Script Exercises

- Music On Hold while in queue
  - Play music, add a message.

    Let the caller choose whether to stay on the line or not, if not leave a message or a "call back" request.
- Music on hold

  Play music specific to the callers queue or skill(s).

ICS/TCS/MCS Scripts

Call Arrival
No Agent Response
In Queue Timeout
Pickup Timeout
Transfer Timeout
*NEW*Call Terminated Script
Optional Parameters
Integration Points
   Database lookup at key script statements
   More Error handling

ICS/TCS/MCS Scripts

- Call Arrival
  - Set default queue, change call message.
  - What else could you do?
- No Agent(CSR) Response/
  Call Termination Script
  - Send caller to FAQ page of interest.
  - Strip skill and offer to a larger group of CSRs only if other CSRs are available and caller wants a less qualified CSR..
  - Allow caller to leave a message

1-14

ICS/TCS/MCS Scripts

- In Queue Timeout
    - Alert a supervisor.
    - Route to any CSR.
    - Play a message and offer caller a few choices: **leave a message**, connect to a less qualified CSR, **stay on the line** the estimated wait is...
- Pickup Timeout
    - Strip a skill if call for one agent
- Transfer Timeout
    - Alert supervisor
- *NEW*Call Terminated Script
    - Transfer to another queue
    - Other choices

Integration

- Optional Parameters
    - Assign an optional **parameter to a call.**
    - Assign an optional **parameter using a database** lookup using another **optional parameter.**
- **Integration Points**
    - Database lookup at **key script statements**
        - IVR, Call Arrival
    - More Error handling
        - VBOCX.log, Event viewer, Reports.

1-15/15

CosmoCall University
Certification Course 302
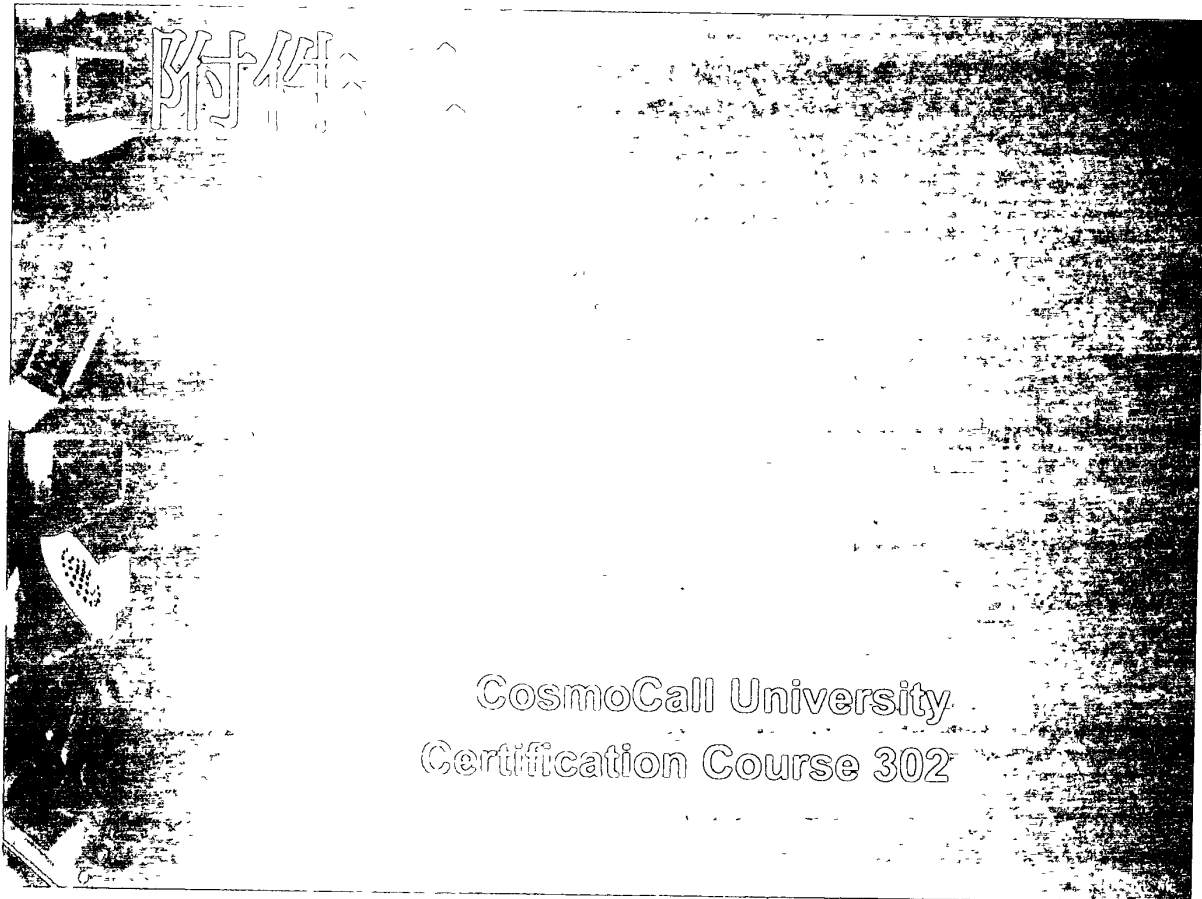
Target Audience

Target Audience: Experienced/Advanced C++ and VB programmers who need to Integrate CosmoCall Universe with a CRM and/or develop their own agent GUI using the Agency Statistics and Administrator COM objects.

This is a 3 day course covering the creation, testing and debugging of COM objects written for CosmoCall Universe.

Agenda

Introduction to CosmoCall Universe and the COM objects you can access

- VB 6.0 new and improved features for COM programming

  Object Browser in VB 6.0

- Setting up the development environment

  - CosmoAgent (exe)

    CosmoAgentCOM.dll

  - CosmoCallHelpers.dll

- Creating an Agent Assistant

  - Add references for 'CosmoAgent' and 'CosmoAgentCOM 1.0 Type Library'

    View call data including optional parameters

Agenda

Pass one parameter off to a COM compliant Database (CRM)

Display one record in a form

Imbed a web browser and Display one record in the web browser using an ASP file

Integration Points

Connection Servers

Back End Servers

Agent

2-2

Agenda

- ❖ **The CosmoCall Universe COM objects, their events, methods and properties**
  - The SimpleAgent
  - Supertronics Agent Helper
- CosmoCall Agent COM Model
  - Object relationships
  - ACD Object
  - AgentFactory Object
  - CosmoAgent Object
  - AgentView Object
  - CallDescriptor Object
  - ChatRecord Object
  - Skill Object

Agenda

- ❖ CosmoCall Statistics COM Model
  - Overview
  - The COM Model
  - Dependencies
  - Classes
  - Statistic
  - Statistic Interface
  - AgentState
  - AgentState Interface
- StatSvc
  - StatSvcs Interface
  - Statistics Descriptions
  - Agent State Descriptions
  - Agent State IDs

2-3

Agenda

- CosmoCall Administrator COM Model
    - Object relationships
    - Objects and their Events, methods and properties
- Design your own Agent GUI
    - Copy the default agent object or...
    - Create a custom agent from the library
- Integration Examples
    - Onyx
    - Brightware
- Integration techniques
    - COM object programming
    - GlueWare Applications
        - From DDE to screen scrape

Agenda

- Testing and Debugging
    - VB debugging techniques
    - Error files and logs
    - Step by step programming, testing and developing an integration test plan.

2-4

Introduction

❖ **CosmoCall Universe and our COM Objects**

    VB 6.0 new and improved features for COM programming

        ADO and ActiveX support

    Object Browser in VB 6.0

        Just press F2

        Displays Classes and Members

        Search for class or member within a library, use whole or partial name.

        Help is linked to the MSDN library which comes with Visual Studio – very helpful.

Setting up the development environment

❖ **Installing the AIS Agent onto your development machine will load the following three COM objects:**

CosmoAgent

CosmoAgentCom.dll

CosmoCallHelpers.dll

In the C:/Program Files/CosmoCom/Agent folder.

2-5

CosmoAgent (exe)

- This is the standard CosmoAgent and has the following events that it reacts to:
- AgentBindToCallREquest
- ChatMessage
- Ring
- StateChange
- This is the program that you reference to create an Agent Assistant Program.

CosmoAgentCom.dll

- CosmoAgentCOMlib has many events, methods and properties.
- The Object Browser will show and let you search the Librarys, Class' and Members (Methods) of each COM object.

Creating an Agent Assistant

- Add references for 'CosmoAgent' and 'CosmoAgentCOM 1.0 Type Library'
  View call data including optional parameters in text fields linked to CosmoCall Parameters.
- Pass an Optional Parameter to a DataBase and have it return a record associated with the Call.
- Add components: Microsoft Internet Controls.
  Design an ASP file to take the data from the DataBase and Display it in the Web Browser Window.

Create an Agent Assistant Program

- ❖ I have provided you with a simple database, two tables, 10 rows and two rows called OnyxLite (No relation to Onyx)
- My engineer has created a dll file to communicate with the database: onyxlite.dll, in real life the database should come with this.
- As step three to this exercise we will push the record from the database to a web page, to accomplish this my engineer has created an ASP file: Training.asp

In VB 6.0, create an exe project and add the following labels and textboxes to the form.

1.   Add six Label fields and TextBoxes on your form. We will use these fields to display 'screen pop' values that are passed from the client side.

2.   Add references for 'CosmoAgent' and 'CosmoAgentCOM 1.0 Type Library'.

3.   Add code to do the following:

○Create a new variable.

○Use the variable to connect to the CosmoAgent COM object.

○Call a method to initialize the COM object.

○Get the parameters and insert them into the text fields.
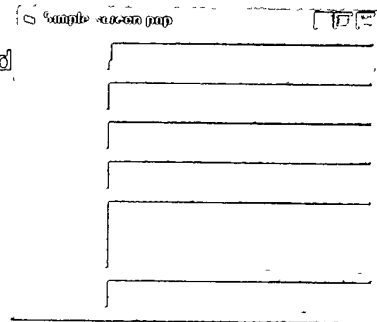
```
Dim WithEvents AgentHelper1 As CosmoAgent.clsCCAgent


Private Sub Form_Load()
    Set AgentHelper1 = New CosmoAgent.clsCCAgent
    AgentHelper1.Connect
End Sub


Private Sub AgentHelper1_Ring(ByVal Descriptor As COSMOAGENTCOMLib.ICallDescriptor)
    Text1 = Descriptor.CallParameter("NAME")
    Text2 = Descriptor.CallParameter("SK")
    Text3 = Descriptor.CallParameter("CIP")
    Text4 = Descriptor.CallParameter("UR")
    Text5 = Descriptor.CallParameter("HM")
    Text6 = Descriptor.CallParameter ("CustomerID")
End Sub
```

2-8

In Visual Basic, modify the code to:

◦Create a new variable.

•Add reference for 'onyx lite'

◦Use the variable to connect to the CosmoCRMcom object.

◦Call a method in CosmoCRMcom object which pulls the **CustomerID.**

Dim CCRM As CosmoCRMcom

Set CCRM = New CosmoCRMcom

CCRM.FindIt Descriptor.CallParameter ("CustomerID"), True

1.   In Visual Basic, insert a web page ActiveX control (*Project* menu →
Components → *Microsoft Internet Controls*).

2.   Drag the Web Browser control (looks like a globe) onto the **form we have**
been using.

3.   Navigate to a dynamically generated web page which gets the
CustomerID through a query.

```
WebBrowser1.Navigate "http://localhost/training.asp?record=" &
Descriptor.CallParameter("CustomerID")
```

Integration Points

✴ Connection Servers
- Internet Connection **Servers**
  Telephone Connection **Servers**
  Message Connection **Servers**
- Back End Servers
  ODBC
  Administrator COM
  Statistics COM
- Agent
  Screen Pop
  Agent GUI

2-9

Pure IP System Architecture

2-10
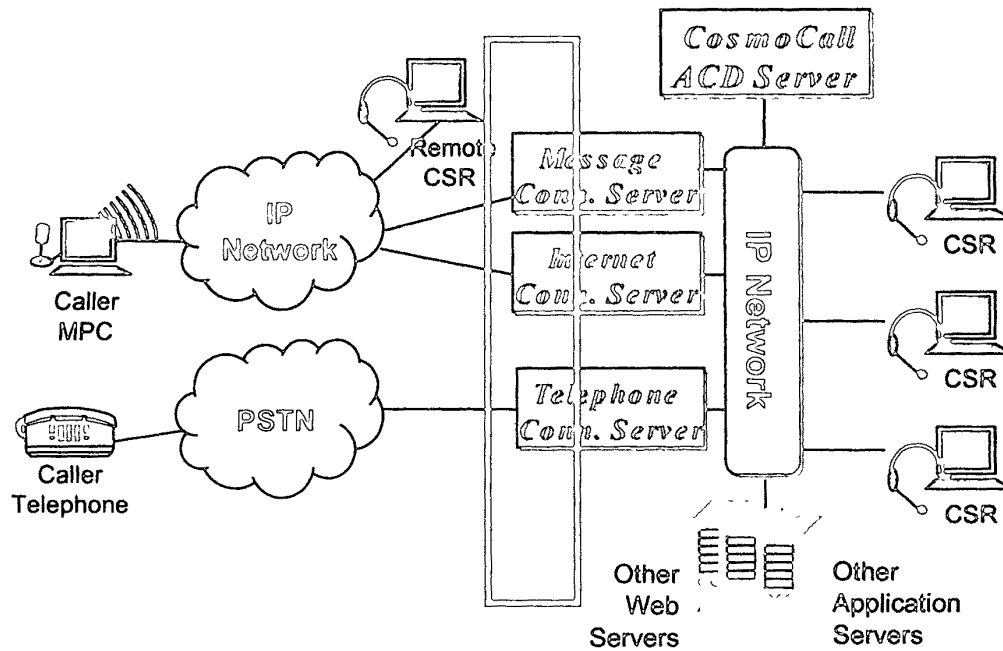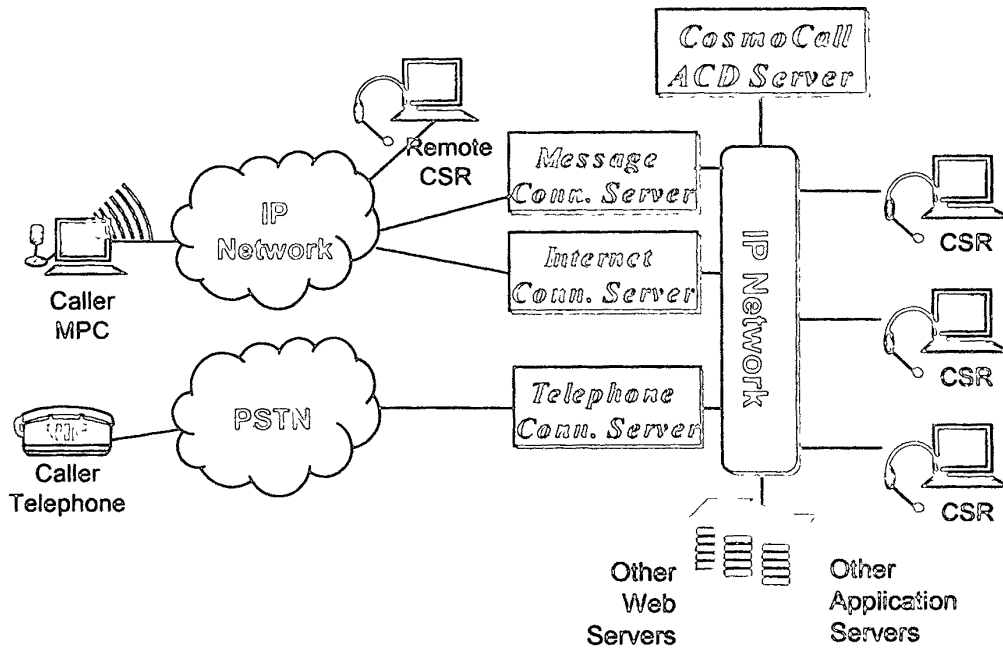
Front End Integration Points

※ Setup of Call Data Information at connection servers when forming call request to CosmoCall ACD.

- Call routing information (Queue, Skills, ...)
- Call presentation Information
    - Caller URL (Native Functionality)
    - Caller Name
    - Caller Descriptive Message
    - Custom Data (Customer ID, Trouble Ticket #,...)

Connection Server Specific

※ Internet Connection Server (ICS)
    - Web Site (ASP, CGI, Perl, VBScript, Jscript)
※ Telephone Connection Server (TCS)
    - Telephone Trunk Line Provisioning (ANI / DNIS)
    - IVR Script (VBScript, Jscript, Perl)
    - Legacy switch and IVR Integration (flash, DTMF)
※ Message Connection Server (MCS)
    - Message Handling / Auto Reply (Rules & scripts)

2-11
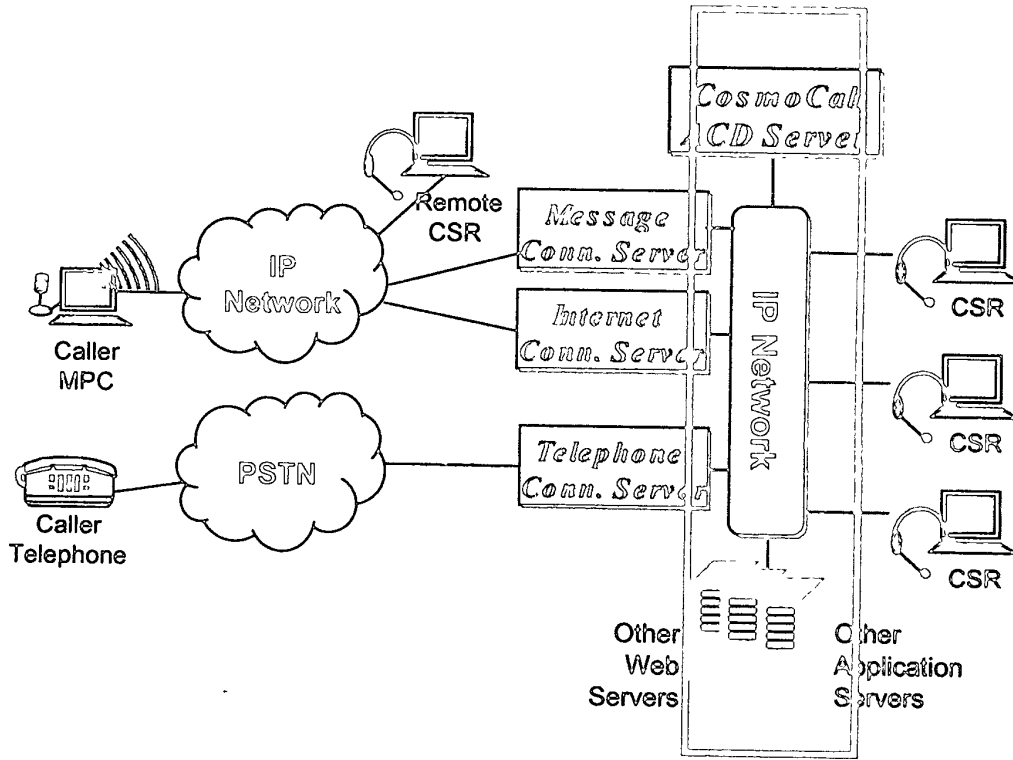
Integration Points in the Middle

- Database
    OLE DB / ODBC
- Reports
    Crystal / ASP
- Administration
    COM
  Statistics
    COM
  Object Routing Engine
    Scripts for Call handling (too long in queue, ...)

2-12
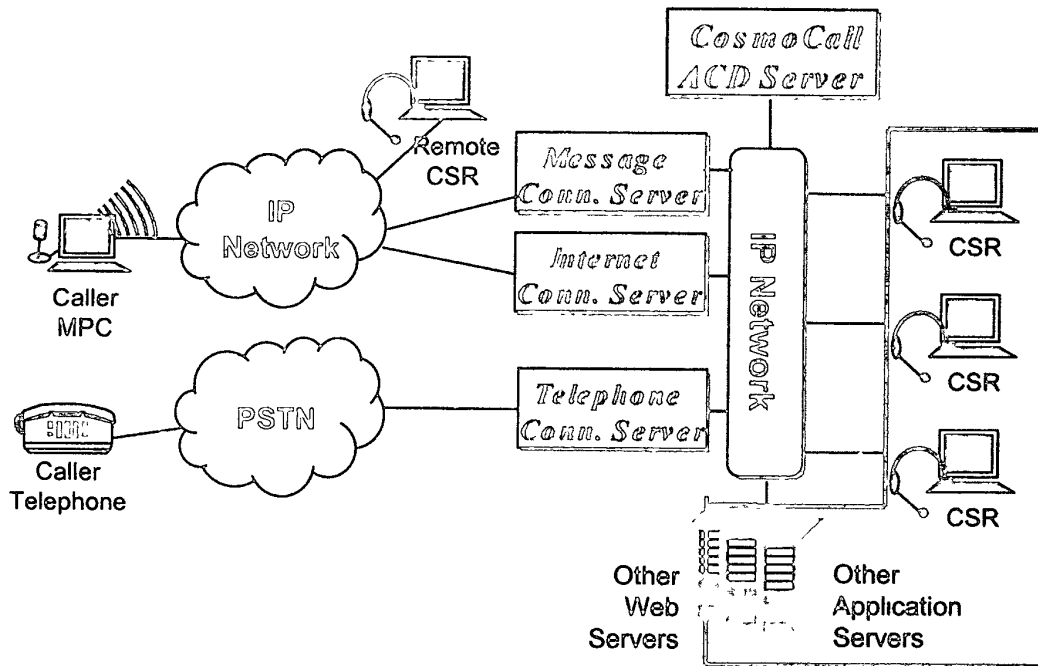
Back End Integration Points

- Agent Desktop Application (SCREEN POP)
- Browser pop / web page or URL integration (Native Functionality)
- Embed CosmoCall COM / ActiveX objects into other applications for screen pop
- Completely replace Agent Workstation UI with integrated application via COM interfaces
- Helper application or "glue-ware" application to translate CosmoCall integration data into something the application can understand

2-13

CosmoCall Universe 3.3 COM Objects

Simple Agent

CosmoAgent.exe the "simple" agent meaning the default agent you've seen a thousand times on your machine.

CosmoAgent.clsCCAgent

It has four events:

AgentBindToCallRequest

ChatMessage

Ring

StateChange

14 methods (functions) and

15 Properties

Supertronics Agent Helper

Lets take a look at the Agent Helper program developed for the Supertronics demo.

It has all of the agent functionality plus data retrieval from the Access database that supplies information to the web site and more.

CosmoAgent COM Model

- CosmoAgentCOM.dll is the file that encapsulates the CosmoAgentCom Type 1.0 Library.

  Globals are Global variables and constants and consist of Properties, sub-routines, events and constants.

- There are classes which can create objects and own events

- There are Hidden classes, right mouse click – show hidden members.

  And enumerations which map strings to integers so you can choose a string and return an integer.

CosmoAgent COM Model

The LoginServer and AgentFactory classes create new CosmoAgent object.

The new CosmoAgent can then "talk" to the system through the other objects created using the other classes: ACD, CallDescriptor, etc.

Descriptions of all classes of the CosmoAgentCOMlib and all members of each class are in the development manual.

2-15

Building your own Agent GUI

* To use the existing agent object as in our agent helper program
  * Set newagent = New CosmoAgent.clsCCAgent using the CosmoAgent object
* To create your own, customized Agent
  * Set newAgent = objAgentFactory.NewAgent using the LoginServer and AgentFactory objects from the CosmoAgent Type library
* Unzip the AgentCOM SDK revision 0.9
  * Rev 0.9 means its not released yet, this is an advanced copy.

The Development manual

* There is a DevManual word document and a folder named ManSupportFiles with 12 folders inside with the project code for doing all exercises in Chapter 3 of the manual.
* The manual was created by Steve Lindsay of our U.K. office.
* It is still under development but will get you started with your Integration and Agent customization projects.

Writing a custom MSMQ CosmoCall Agent

- Build an MSMQ agent go to folder names example 3 – CosmoCall slim and open the project.

  Open the devmanual and go to page 27.

- Review the code. All of the versions of the custom agent described in the manual have been provided in the proceeding folders: example 4, 5 ... You can follow along or try writing the code yourself.

Writing a custom AIS CosmoCall Agent

- Go to page 79 in the development manual and open the project in folder: example 11 This section will explain how to convert your MSMQ agent into an AIS agent.

  AIS agents are really remote controls to MSMQ agent running on the AIS server using the "wrapper" functions.

2-17

Creating an ActiveX agent

- Go to page 86 in the development manual and open the project in folder: example 12 This section will explain how to convert your MSMQ agent into an ActiveX agent.
- First you must need to add the ActiveV Doc migration wizard from the add-in manager of the add-in menu.
- Convert the project, in the example Steve used the project from example 10, to an ActiveX dll. Be sure to Keep the form.
- Launch in an Internet Explorer window.

Statistics Com Model

- The CosmoCall StatisticsServicesCOM users Guide describes the Statistics COM model, its dependencies and classes.
- These objects can be used to retrieve statistics from the ACD statistics server example: is a particular agent logged in and available?

  Only those functions required for retrieving statistics are included in the guide; other internal functions to the ACD are not documented here.

2-18

Statistics Com Model

- Create a VB project that accesses the current state of your agent.
- Gather information from the real time reports; example: how many calls are in queue.
- The statistics server is the service running on the ACD that supplies information to real time reports.

Administrator Com Model

- Create a VB project that accesses the configuration of your call center.
- Gather information about what skills are active in the call center.

  Show which scripts are linked to which events.

  The administrator COM is loaded when you load the administrator client program, it accesses all configuration data about your call center.

2-19

Thank You!

If you need additional technical information, please contact us:

Mark Stuart

mstuart@cosmocom.com

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121 Broad Hollow Road, Melville, NY 11747
(631) 940-4200

2-20/20
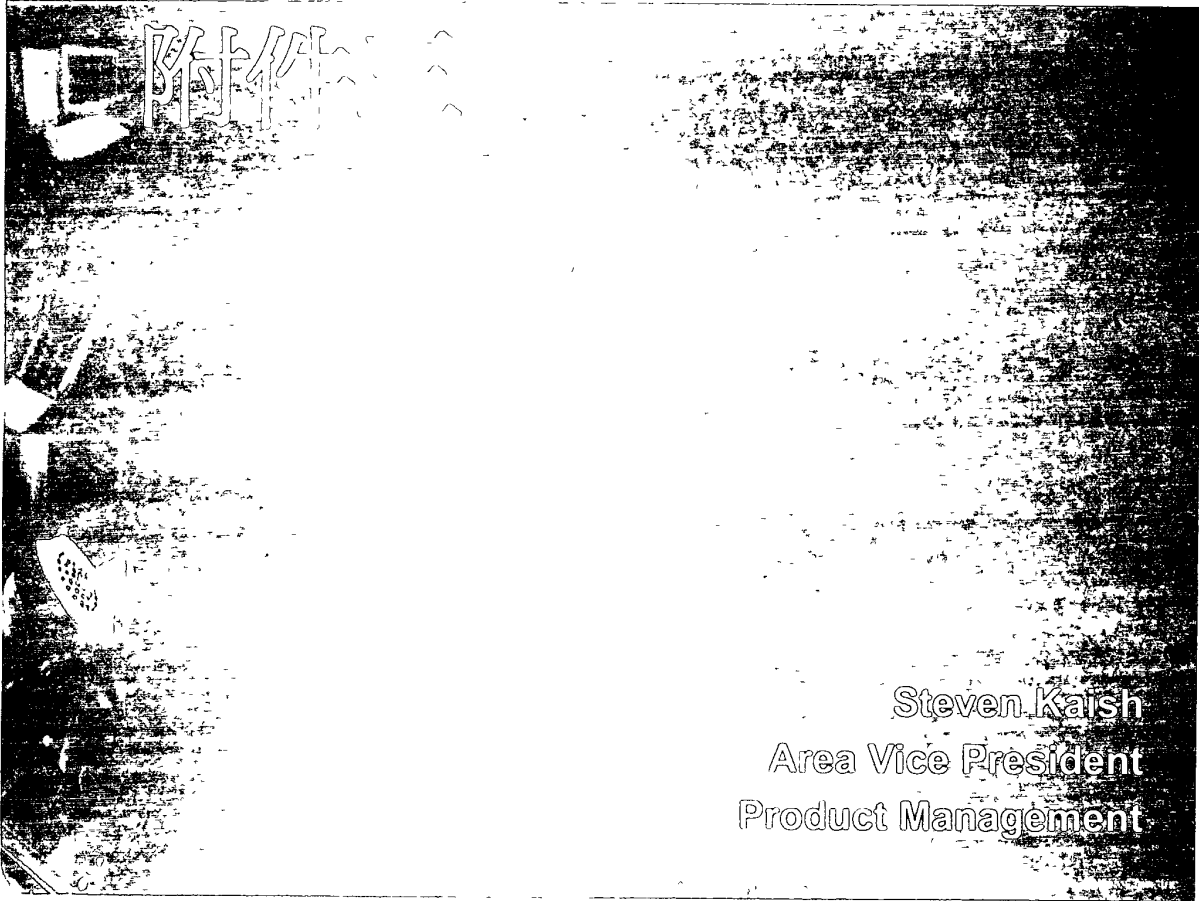
Steven Kaish
Area Vice President
Product Management

Evolution Strategy for Legacy Call Centers

- Web-enable legacy call centers
- Provide gradual evolution for mixed circuit & IP environment
- Provide unified Queuing, Reporting, and Administration across all Centers
- Extend home agent capability to legacy call centers

Seamless Enterprise Hybrid Contact Center (SEHC-C)

Supervisor

CSR

ACD Server

Voice over IP Connection Server

Agent Interaction Server

Voice over IP Gateway

Local PSTN

GW

Managed IP

GW

Internet

All-IP CSRs

Telephone Caller

Local PSTN

IP

GW
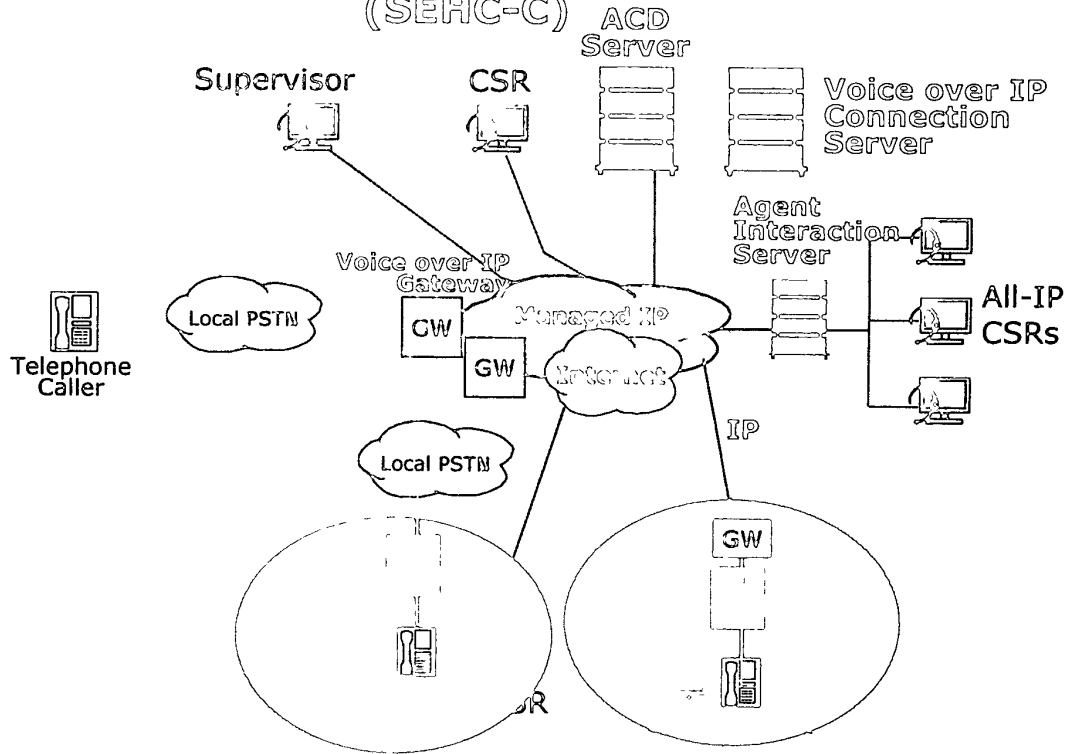
Load-balancing vs. SEHC-C

Legacy Load Balancing

SEHC-C

Telephone Caller

Telephone Caller

PSTN

SS7

Local PSTN

GW

Managed IP

Internet

GW

CosmoCall Universe

Local PSTN

3-2
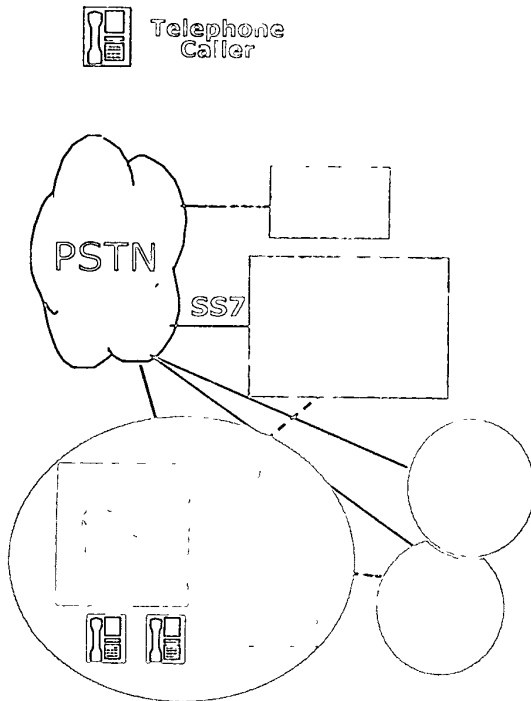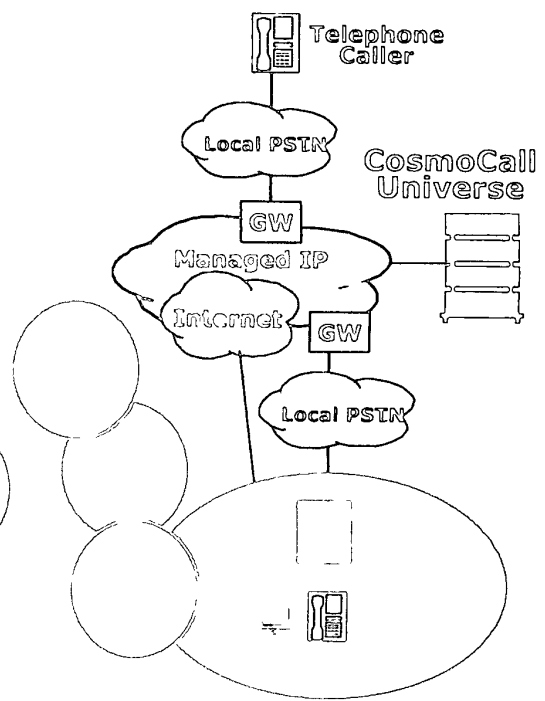
Load-balancing vs. SEHC-C: A Comparison

Legacy Load Balancing

Unified view of all centers

- Routes call to a Local Queue
- Load-balances only voice calls
- Costly CTI integration
- Costly SS7 connection to telco for signaling info
- Routes to Circuit Agents only

CosmoCall SEHC-C

- Unified view of all centers
- Routes call to best-skilled Agent

Unified queue for calls of all media types

No CTI required

- Simple IP connection for signaling info
- Routes to Circuit and IP Agents

Load-balancing vs. SEHC-C: A Comparison (continued)

Legacy Load Balancing

- Two-stage, multi-vendor IVR system required
- Calls queued at termination
- Overflow to alternate termination may be required

CosmoCall SEHC-C

Single-stage IVR for all calls

Calls queued in the IP network

Overflow is NEVER required

3-3

Unifying the Legacy Call Center: Conclusions

- CosmoCall Universe SEHC-C provides the ultimate in Unity
    - Adds Internet and Messaging functions to Legacy ACD agents
    - Unified Queue for all Agents: both IP and Legacy ACD
    - Unified Queue for all Media Types: Telephone, Internet, and Messaging
    - Unified reporting for all agents, all media types
    - Routes all media to the best agent across *all* centers

3-4/4
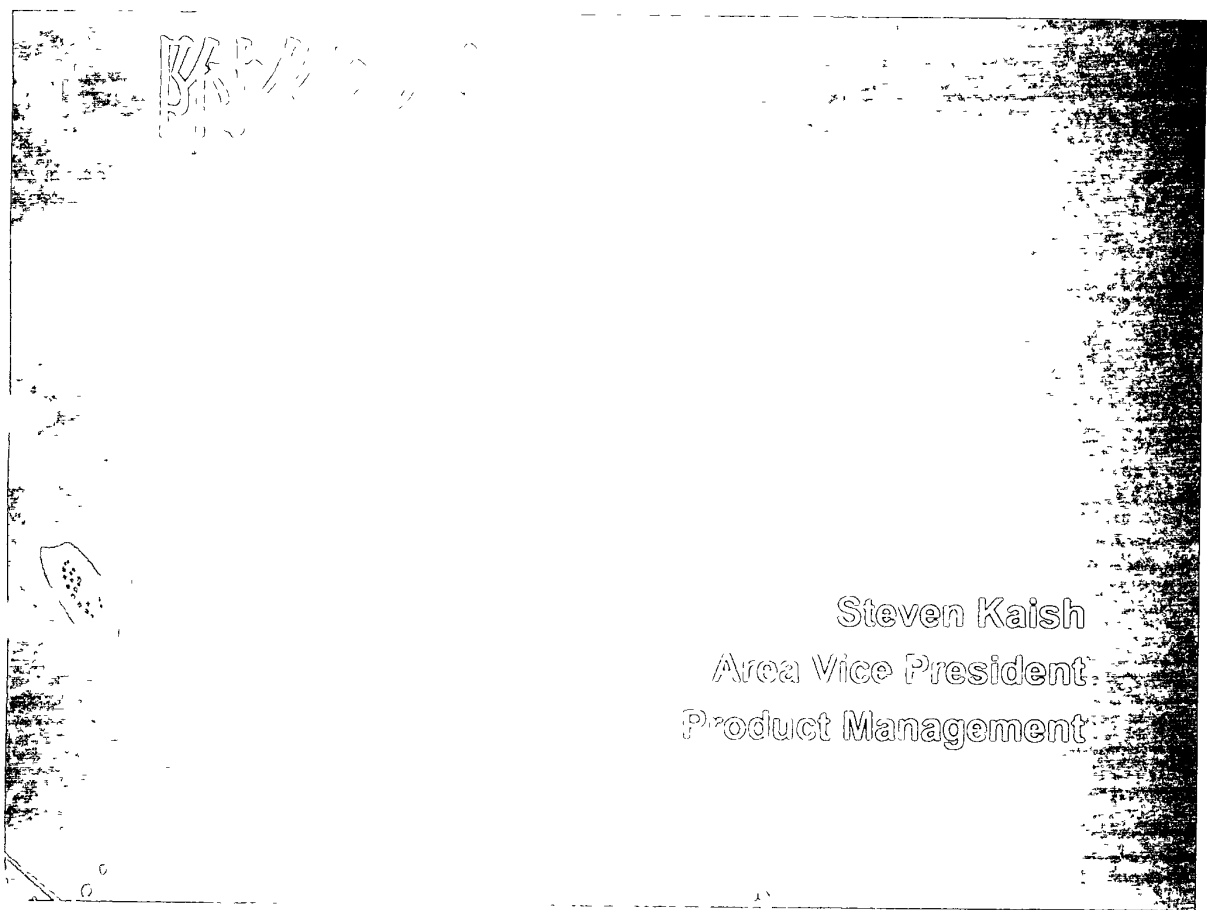
Steven Kaish
Area Vice President
Product Management

CosmoCall Universe
Product Release Plan

		Q201	Q301

Universe 4.1
VoIP Conn. Server

Universe 4.2
Browser-based Agent
More E-mail Features
Many Productivity
Features

Multi-Tenancy
Enhancements
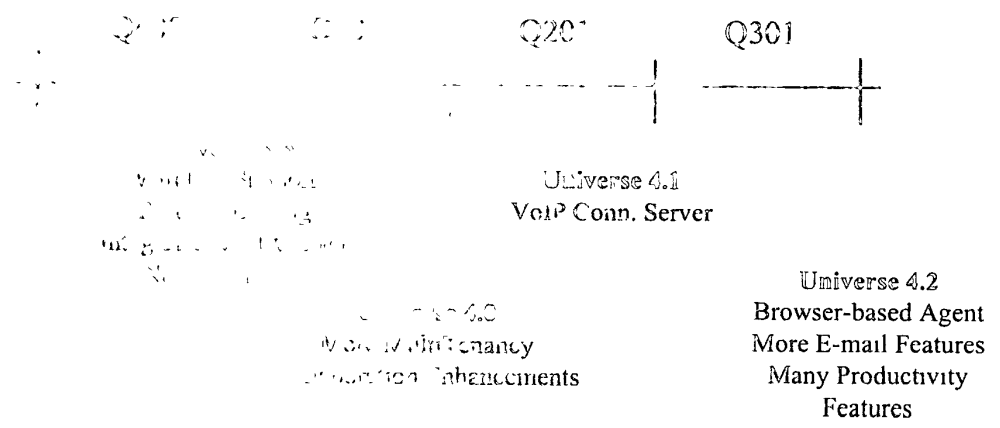
Steven Kaish
Area Vice President
Product Management

Universe 3.3
New Devices Supported

Caller side

Wireless Connection Server

Real-time help for Wireless browsers

Agent side

Telephone delivery of telephone calls

Agents can use PBX phone or PSTN phone to
answer calls.

4-2

Universe 3.3
New Call Types Supported

Scheduled & immediate call back
- Unified queuing with all other CosmoCalls
- Screen POP prior to hitting "Dial"

Blended Outbound Dialing Campaigns
- Integrates easily with any Outbound Campaign Management system
- Unified queuing with all other CosmoCalls

Universe 3.3
MultiLingual Agent Support

Agent and caller software in 12 languages* - so far.
Each CSR can select their language of choice for their own Agent user interface.
Chat interface language selected call-by-call, on the fly!
- CSR can have Agent user interface set in one language, but chat with a caller in a different language!

New languages quickly added – no development required!

* English, French, Italian, Spanish, German, Portuguese, Finnish, Swedish, Traditional Chinese, simplified Chinese, Japanese, Korean.

4-3

universe 3.3
Installation & Infrastructure

- Single-Click Install of Agent
  - New agents can download and install software themselves, with no set-up/configuration required.
  - Benefit: Agents are set up without "rolling a truck" – GREAT FOR ASPs, Remote Agents.
- Agent Interaction Server (AIS) Generally Available and Required

Universe 3.3
Agent Interface

Integrated Mail Viewer
- No MS Outlook needed
- Therefore, no 3rd party software on agent desktop – just CosmoAgent!

Outbound call enhancements
- Speed Dial
- Last 25 numbers dialed

Quick mute on agent

4-4

Universe 3.3
Routing Features

- Outbound Dialing Plans
    - Restrict/block outbound calls
    - Local dialing – independent of agent location relative to TCS(s)
    - Least Cost Routing (i.e. select appropriate TCS)
    - And WHATEVER ELSE YOU WANT TO DO (via scripting)
- Call Routing enhancements
    - Call Termination script
    - Requeue rejected calls

4-5/5
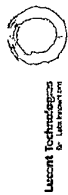
CentreVu Internet Solutions R4.2
Real-Time Communications

Jenny Goh
IN-Reg... R&D
65 872 8297

INTERNET
SOLUTIONS
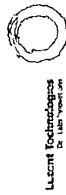
Agenda

- Overview
- Features
- Topology
- Structural Concept
- Configuration Requirements
- Connectivity
- R4.2 Change Description
- What's new in R4.3
- Installation
- Administration
- Hands-on Exercise
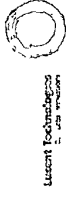
ICC Overview
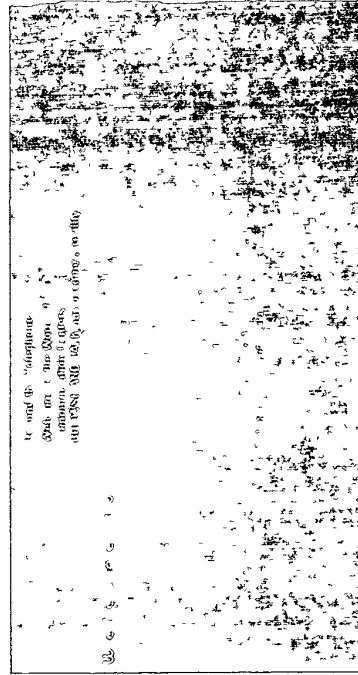
- Caller Experience
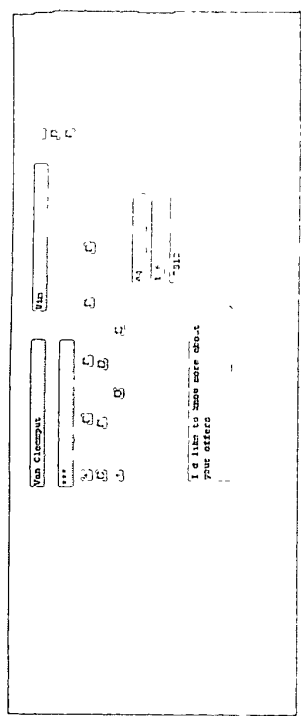
ICC Overview

□ Control Applet

– used for text chat

– URL sharing

– terminate call

Centre We Internet Solutions Control Window

Enter Text or URL below

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6

ICC Overview

□ Caller Experience

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5

ICC Features

- Integrates into DEFINITY Call Center
- Voice Over IP
- Text Chat
- Call Back
- Escorted Browsing
- Encryption for Text Chat, URLs and Messages
- Multiple Language Support
- Multiple ITG Support
- Conference & Transfer
- Ability to Customize User Interface
- Dynamic HTML

- Support for Secure Socket Layer (SSL)
- Passing of UUI for CTI Applications
- Reports
- Priority Routing
- HTML Forms Sharing
- HTTP Tunneling
- Internet Pre-Route (CIRS)
- Power Browsing
- Multi-Tenant Support
- Virtual Conference
- Supports Multiple Frames

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8

ICC Overview

□ Agent Experience

CALLER INFORMATION

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7

ICC Features

□ VoIP call

- enables callers to talk with agents through an existing internet connection using the multimedia capabilities of the computer and only *one* phone line
- Netmeeting called as standard H.323 client, could use different ones
- download from Microsoft website

9

ICC Features

□ text chat

- enables agent and caller to exchange text messages
- through the control applet that gets launched on caller and agent side
- useful when caller is not equipped to handle internet telephony calls (i.e. Netmeeting and/or multimedia components)

10

ICC Features

□ PSTN callback

- 4 types of callback
  ° Caller-initiated
    - enables who are not equipped with internet telephony
    - callers located behind firewalls that block internet voice traffic
  ° Agent-initiated
    - useful if voice quality degrades during a real-time call
    - agent may already know caller's phone number before-hand when caller input data on the screen
    - agent can prompt caller to enter phone number
    - text chat and escorted browsing is available if caller has a 2nd phone line
  ° Caller-initiated with collaboration
    - caller has 2 phone lines (one for internet, one for PSTN)
  ° Caller-initiated, scheduled (R4 3)

11

ICC Features

□ page sharing (escorted browsing)

- URL gets passed from caller to agent or vice versa
- URL picked up by
  ° copy/paste in text chat window
  ° send page button
    - need domainlinker if ICM and web server are different machines
- works with frames
  ° 4 2 also fixes multi-level frames
- if a URL is normally inaccessible to one party (e.g. behind a firewall), it will remain inaccessible during escorted browsing

12
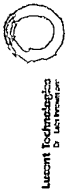
ICC Features

□ page pop
- provides web-based information
- content of web page presented to agent when a real-time call is connected is administrable by the call center
- includes
  ◦ web page that the caller called from
  ◦ information that was entered by the caller prior to the call
  ◦ information extracted from a database based on some caller identification

13
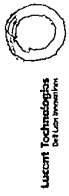
ICC Features

□ assisted form filling
- all form data passed
- in 4.2 also works with multiple forms
□ HTTP tunneling
- if caller is behind firewall
- resets browser's (IE or Netscape) security setting to make ICM connection through proxy
□ multi-site routing
- CIRS application
- CIRS knows about status of agents on all connected ICMs

14
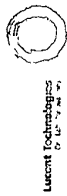
ICC Features

□ UUI data passing
- set UUI data in caller page
- passed to CTI application on agent desktop
□ localization
- English, Japanese, Korean, Simp. Chinese, German, French, Colombian Spanish, Brazilian Portuguese, Italian
- easily add own language
□ encryption
- text chat, URLs, form filling, displayed messages

15
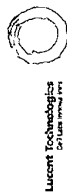
ICC Features

□ virtual conference
- allows web-based callers to join a conference that is hosted by a presenter
- Presenter can push web pages to all caller's browsers participating in the conference
- other features like text chat available
□ service observing
- allows supervisor to observe real-time calls like other PSTN calls
- supervisor must log into the ICM using the same skills as the agent
- supervisor appears as a conferee
- can observe all chat, web pushes, etc

16

5-4

ICC Features

- **direct agent dialing**
  - allows callers to select a specific agent
- **power browsing (4.2)**
  - set caller's cookie info on agent's browser
  - even in an SSL session agent/caller see same page
- **arenas**
  - allow different looks in the same call center
  - good for call centers that provide outsourced call center services

17

ICC Features

- **Send page by arena (4.2)**
  - allow the send page button to be displayed depending on arena
- **web pop manager (4.2)**
  - allows web pops based on arena
- **sample web pages feature**
  - http://<icm_server_name>/icc/icc_samples.html
  - /itg/ex1 to /itg/ex7

18

ICC Feature

- Centralized Internet Routing Service (CIRS)
  - separate NT Service
    - installed on a separate NT server or with ICM/CTI
    - provides control window similar to ICM/CTI for viewing or commands
  - centralized control and information for multiple ICM sites
    - tracks resources (voice, chat or mail) and agents for each site
    - distributes calls across sites based on resource availability
    - provides site VDNs based on skill association (identified in caller web page)
    - allows simultaneous single site and multi-site use (like Message Care)
    - supports turn up/down individual sites

20

ICC Features

- Internet Pre-route

NT SERVER
(Centralized Internet Routing Service)

Web Server

ICM Site
Denver

ICM Site
Los Angeles

ICM Site
New York

CTI/T-Server   ICM   ITG   DEFINITY

19

5-5

ICC Feature

- Customizing CIRS Usage
  - Multiple ways for customer to modify their use of CIRS (all documented)
    - http //<cirs_server_name>/itg/docs
      » 1 Replace default routing algorithm within CIRS by writing java class
      » 2 Application can use API to place calls to CIRS and forward them to identified ICM
      » 3 Application can use API to collect all CIRS information and make own centralized routing decisions

---

ICC Features

□ Ability to customize user interface

- open API
- change
  • font size
  • color
  • framed interface
  • drop down canned response
  • button label
  • aspect ratio
  • change logo

ICC Features

□ Reports

- CMS
  ○ traditional voice reports
- BCMS
- ICMS
  ○ collects data like page hits, call requests, etc
  ○ installable on CMS V5, V6, V7
  ○ discontinued, not supported with CMS V9
  ○ PEC inactive on 7 August 2000

ICC Topology - chat & callback

Client Endpoint · DEFINITY · DCP · CTI · CentreVu CT Server · ICM Server · Web Server · TCP/IP Router/Firewall · TCP/IP · Firewall · DMZ · Secure LAN · Agents · TCP/IP · CMS
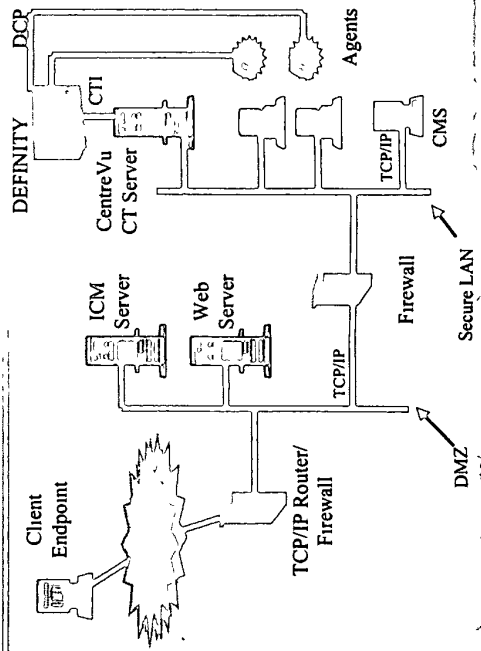
ICC Topology - Internet Voice
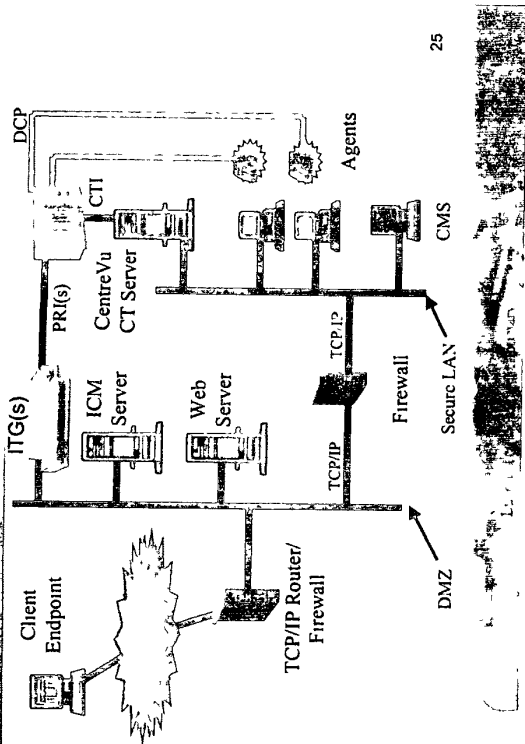
ICC Structural Concept
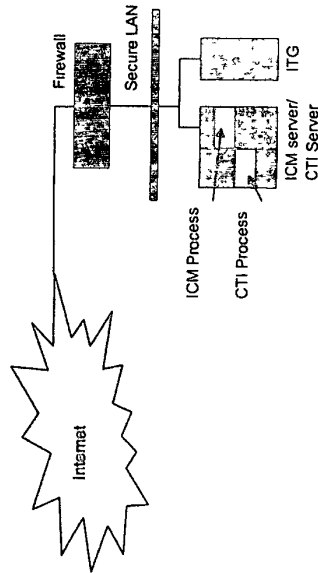
☐ Where do components go ?

ICC Structural Concept

☐ Where do components go ?
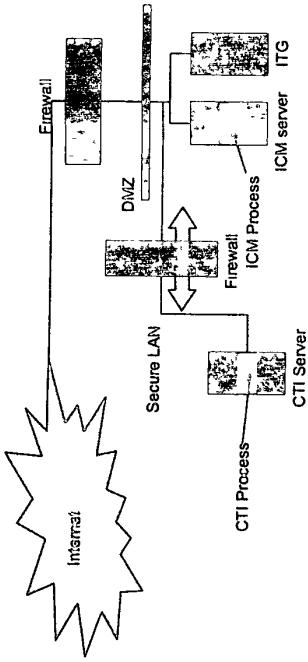
Configuration Requirements (min.)

☐ ICM server
 – 300 MHz Pentium, 128 MB RAM, CDROM, NIC card, Microsoft Windows NT 4.0 Server, Service Pack 4, IIS 4, JRUN 2.32, JRE1.1.8, ICM/CTI R4.2
 – Security Certificate (for SSL and forms sharing)

☐ CMS and supervisor (Optional Components)
 – R3V5 (r3v5ai.f or greater) for ICMS
 – V6 Supervisor (CG.09 or greater)

5-7

Configuration Requirements (min.)

- CentreVu Computer Telephony
  - CentreVu CT R3.10 V3.0
- Definity ECS
  - R6.3 for phantom call
  - R3V5 (PRI only call origination)
  - TN801B MAPD board (R2 I2)
- Agent desktop
  - Microsoft Windows 95/98, or Windows NT 4.0
  - Microsoft Internet Explorer 4.x+ OR Netscape Navigator 4.06+
  - ACD phone

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29

Configuration Requirements (min.)

- Caller desktop
  - IE / Netscape 4.0 + browser
  - Netmeeting 2.0+ for VoIP
  - Multimedia PC - mic/speaker needed for VoIP, soundcard
  - phone line
  - ISP connection

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30

Configuration Requirements (min.)

- ITG
  - ITG software load 611 (R4.1) or greater, DSP card, E1/T1 card, NIC, CPU p5120+
  - future: replacement of ITG server
    - DoLAN (DEFINITY on LAN), Definity H 323 'DID' trunks
    - prowler
    - Ascend MAX X000 (mid-yr 2000 timeframe)

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31

ICC Connectivity

- ICM process and CTI process
  - JAVA applications
  - run as NT service
  - used for ICC and Message Care
  - communicate via TCP/IP connection
    - can be separated
    - must communicate over defined port
  - have UI for debugging
    - ICM Manager
    - CTI Manager
      - normal mode
      - debug mode

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32

ICC Connectivity

□ CTI process

- Provides an interface between the internet domain and telephony functions of the switching domain of the call center
- Interfaces with the ICM to pass incoming internet requests to the call center
- Pass call center status and responses back to the ICM
- Interfaces with CVCT to monitor call progress information within the call center domain and launch calls through the call center

33

ICC Connectivity

□ CTI process (cont...)

- Abstracts JTAPI level for ICM
- Provides an interface between the internet domain and telephony functions of the switching domain of the call center
- Interfaces with the ICM to pass incoming internet requests to the call center
- Pass call center status and responses back to the ICM, i.e updates ICM on call progress
- Interfaces with CVCT to monitor call progress information within the call center domain and launch calls through the call center
- Launches calls for PSTN callback
- Launches phantom calls (ASAI phantom calling in DEFINITY R6.3 and greater)

34

ICC Connectivity

□ CTI process (cont...)

- Handles agent login/logout
- Monitors agents and calls in DEFINITY
  ○ monitors skills for login/logout activity
  ○ monitors VDNs to track calls (ASAI Event Notification)
  ○ monitors / controls agent extensions for Callback (ASAI Domain Control)
- Provides Disconnect Cause Codes to ICM (Vector Disconnect vs Busy)
- ICM/CTI server communicates using TCP/IP over a socket on the LAN
- May reside on the same server as the ICM, CVCT and Message Care server

35

ICC Connectivity

□ ICM process

- "Brains" behind ICC - directs other servers
- Written in JAVA
- Runs as NT Service
- Communicates with CTI over defined port
- ICM - CTI protocol is proprietary
- CTI - T-Server protocol is JTAPI
- ICM - ITG connection for monitoring
  • check if ITG is up, how many voice ports available
- Manages web pops
- Downloads and controls JAVA applets to agent/caller
  • via HTTP
  • applet - ICM communication via proprietary protocol (agent) or HTTP (HTTP tunneling, only on caller side)

36

ICC Connectivity

☐ ICM process (cont...)

- "Proxies" agent to caller communications
  - text chat
  - escorted browsing
- Executes Perl scripts
- Always launches call (even if no-one logged in)
  - different URLs pushed for Disconnect vs Busy
- Encrypted communications between ICM and Applets
- UUI Support over ISDN-PRI or ASAI
- Globalization
- Transfer / Conference with data
- Multi-ITG (same DEFINITY) - up to 4 ITGs (420 simultaneous calls)
- ASAI Phantom Call Support

37

ICC Connectivity

38

ICC Connectivity

☐ ITG

- communication with DEFINITY over E1/T1 card
  - 30 channels E1, 23 channels T1
  - administrator for E1 is different
  - E1 A-law companding currently buggy
  - doesn't matter ITG next to switch so use direct cabling
- communication to caller side via Netmeeting H.323 client

39
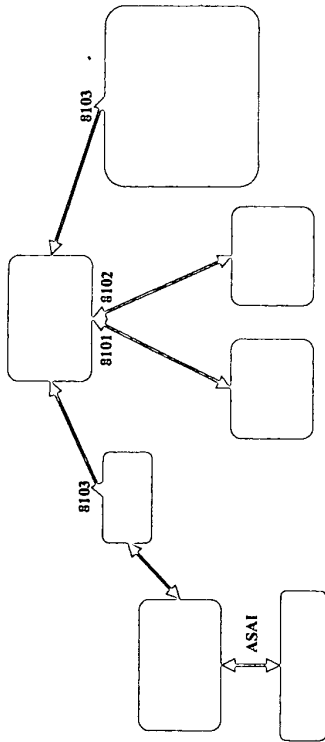
ICC R4.2 Change Description

Reference: Release 4.2 Change Description

1. ASP Script

- New script (domainlinker.asp) to link ICM Server and the Web Server if the ICM software is not installed on the WebServer
  - domainlinker asp (Active Server Pages, new with ICC R4 2)
  - domainlinker class (Java Servlet)
  - domainlinker pl (Perl script)
- *Recommendation* use JAVA Servlet domainlinker class If your Web site cannot run JAVA Servlets, then use the domainlinker pl or domainlinker asp script

40

ICC R4.2 Change Description

Domain Linker

- Java servlet, perl script or asp to support collaborative browsing when web server is different from ICM Server
- can set domanlinker field in icmparms txt to servlet or script
- can set domanlinker URL parameter in each web page

Webserver domain com — Domain linker — Icm domain com — ICC Servlets — Cust Browser

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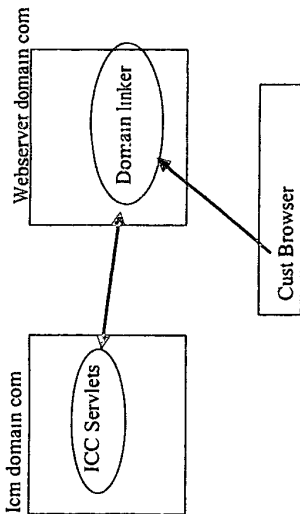
ICC R4.2 Change Description

2. Enhancement to HTTP Tunneling

- Allows callers behind a firewall to contact the call center
- ICC 1st tries to connect the caller applet through the TCP port (8102) If the TCP port connection fails, then ICC uses HTTP tunneling to open a connection through an HTTP port.
- R4.2 - allows ICC to connect the Caller applet through HTTP tunneling without first trying to connect the caller applet through the TCP port.
  - save / reduce connection time!

ICC R4.2 Change Description

3. Power Browsing

- Improves the escorted browsing feature by enabling agents to access the more advanced and powerful features on the internet such as
  - shopping cart applications
  - cookie applications
  - SSL applications
  - independent data viewing
  - customized collaboration

ICC R4.2 Change Description

3. Power Browsing (cont....)

- Involves 3 components
  - Send Page feature - sends the current URL to the agent and checks for the syncToLoc () function
  - syncToLoc () function - gathers data about the caller (e g state information from cookies)
  - Server-side script - processes the data gathered by the syncToLoc () function and passes it to the agent's browser for display
- More information in Change Description

4. Send Page by Arena

- ARENA
  - concept based on the assumption of an outsourced call center
  - 1 call center managers internet calls through a single ICM for a no of different companies
  - each company for which the call center is managing internet calls is thought of as an "arena"
- Control the use of the Send Page feature for each of the arenas
  - E g administer Arena A so that the agents can use the Send Page feature, and administer Arena B where the agents cannot use the Send Page feature
- Opportunity to further customize the ICC application
- More information in Web Guidelines doc on ICC 4 2 CD-ROM

45

5. Multiple Forms

- Enhanced form sharing feature which supports the collaboration of Web pages that have multiple forms
- Agent and the caller can now collaboratively fill out more than one form within the same session

46

6. Multiple Level Frames

- Enhanced multi-frame collaboration feature which supports the collaboration of multi-level framed Web pages.
  - When sending a URL (by using the Send Page feature), ICC captures the URLs structure to include any nested frames within the structure and sends that information to the recipient's browser With this enhancement, the recipient browser displays exactly what the sending browser displays—not just the first level of frames as with previous releases
  - *limitations* ICC can send only the 1st level of frames of multi-level framed URL that is off-site (not located on your Web server) due to permission restrictions

47

7. Supported browsers for callers

Caller Requirements

- 4 x browsers (Microsoft Internet Explorer and Netscape Navigator) - to take advantage of the data security feature
- 3 x browsers will be unable to connect to the ICC
- ICC provided function checkBrowser ()

Inform callers who use 3 x browsers -

- Prescreen callers who are still likely to use 3 x browsers By prescreening, you can accomplish the following
  - Prevent 3 x browser users from ever accessing the Call Us page Because 3 x browser users cannot contact an agent, prescreening will eliminate unnecessary upfront data gathering from the caller
  - Inform 3 x browser users that they need to upgrade to a newer browser version The text that you display to the caller can be anything you deem necessary for your callers For example, you could display the text in a language other than US English, and/or point the caller to a URL where they could download the latest browser

48
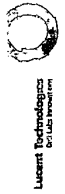
8. Update ICM Routing Status

- *Centralized Routing Services System Administration Menu*
  - Another new method for updating an ICM's routing status and preventing the CIRS from routing calls to a specific ICM
  - http://<CIRS_server_name>/admin/cirs

<u>NOTE</u>
- The *Multisite Configuration* documentation (found in the Change Description document) provides additional methods (CIRS Control Window method or remote method) for updating ICM routing status and also provides information about a multi-site environment

49

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8. Web Pop Manager

- A tool that helps control web pops for each of your arenas (multi-tenant). - Optional
- Ability to direct the Web pops to different URLs based on the arena or use template files to format and return the requested HTML output

9. New Samples and Demos

- Can use the new samples and demos as a mechanism to help meet the unique call center needs

50

- Multiple domains and arena enhancements
- Multiple sessions per agent
- Chat transcripts
- URL transcripts
- Licensing per agent change
- Scheduled callback
- Serviceability enhancements
- CTI as a routing engine
- Support for Korean and Chinese

51

- Multiple Domains and Arena Enhancements
  - Before
    - each arena has a different look and feel for the company's web domain
    - arena handled by the support applets, WT and WebPopMgr
    - setup and administration needed to customize an arena's look and feel was done by manually create and edit configuration files
    - agents can collaborate with callers from one domain only
  - Now
    - Web based administration
    - many of the options that were not configurable are now enabled (e.g. phrases located in the resource files)
    - each arena can control the phrases presented to the endpoints
    - a single agent can service callers from different arenas

52
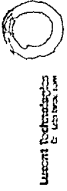
What's new in ICC R4.3

- Multiple Sessions per Agent
  - allows agents to handle multiple simultaneous calls
  - calls can be a combination of the different call types that are supported by ICC
- URL Transcript
  - agents and callers can see a combined list of URLs each party on the call has viewed using collaborative browsing

53

What's new in ICC R4.3

- Chat Transcripts
  - what occurred during the chat session ?
  - Transcript provides an accurate record of the interaction that occurred between caller and agent
  - feature implemented for the caller client and the ICM server
    - caller client implementation
      - allows agents to send the caller the transcript via email
      - if the mail application is not available, the transcript can also be loaded to the web page for print or save
    - ICM server implementation
      - allows agents to save the chat transcript to their database for later reference

54

What's new in ICC R4.3

- Licensing
  - licenses are generated on a per host license file where the license is based on the number of agent logins
- Scheduled callback
  - enable caller to request a PSTN callback be received at some specified time in the future
  - request delivered to ICC with 2 additional parameters (start and stop time) to indicate an interval when the call back is scheduled for
  - call will be routed to the agent as a standard call back request during the scheduled time interval

55

What's new in ICC R4.3

- Serviceability Enhancements
  - Administration page
    - new option added to allow customer to configure if they want agent automatically reconnect after the agent's connection to the ICM is lost
  - ICM UI
    - ICM debug state will remain persistent across reboots
- CTI as a routing engine
  - CTI is running as a servlet from JRUN
- Support for Korean and Chinese

56

ICC Installation

- Installation references :
  - Solutions Guide
  - readme.txt
  - *Additional Administration and Maintenance for Internet Call Center for CentreVu Internet Solutions*
- It is useful to have Perl installed (to run sample scripts)
- General References
  - Solutions Guide
  - Additional Administration and Maintenance
  - ITG Technical Reference
  - Web Guidelines
  - API documentation
  - Change Description

57

ICC Installation

- Problems
  - If JRUN fails, remove it, remove jrun.dll and all related files from inetpub\scripts dir, reboot, delete JRUN dir, reinstall
  - If JRUN servlets can't be called, check if itg\dir is in classpath (add if necessary)
  - ICC may also be installed on drives other than C:\, in this case, be careful during administration as things can get complicated

58

ICC Administration (R4.2)

- CTI
- common components
- ICM
- ITG
- WebPopMgr
- HTTP Tunneling
- Send Page by Arena

59

ICC Administration

- CTI

CTI Administration

	Description Value
T I Address	experiment uk lucent com
Telephony Server IP / Address	innocent1 uk lucent com
Telephony Server Login ID	Roman
Telephony Server Password	●●●●●●●●●
Telephony Server Identifier	LUCENT!G3RCSTA$!INNOCENT1
Connected Host Group	10020

To save these values click the Save Button

WARNING Changes to the Telephone Server IP Address, Telephony Server Login ID, Telephony Server Password or Telephony Server Identifier will cause the CTI application to restart when the "Save" option is chosen. A restart of the CTI application will drop all active calls in progress. All other changes take effect automatically when you click on the "Save" button.

To perform the Update Server Admin command remotely click on the following link Upd te Server

60

5-15

ICC Administration

ICC

Internet Call Center Administration

ICC Administration

ICC

- If ICM/ITG have to access proxy to get to CMS, add to icmparms.txt
  - PegCount ProxyURL=co proxy company com 8000
- icmparms.txt
  - contains ALL admin entered on webpages
  - good idea to back this up before upgrade

ICC Administration

ICM

- still some manual admin necessary, e.g for ITG configuration, HTTP tunneling
- \itg\icmparms txt
  - ITG Configuration
    - n number suffix starting with '1'
    - GWn=<IP address of ITG server>
    - GWIsITGn=yes
      » lower case, case sensitive!
    - ITGPortn=8103
      » specifies TCP port from ICM to ITG
  - HTTP Tunneling
    - n number suffix starting with "1"
    - MPPortn, MPHostn

ICC Administration

Common

Common Administration

ICC Administration

- MPPort1=8107
- MPHost1=<domain name or IP Address of ICM server>
- telephonyAppURL=http://icm.company.com/servlet/WT/nmit
  o this URL launches NetMeeting on caller side
  o could be replaced by other script to launch different H 323 client
  o if this is missing, NetMeeting won't get launched

ICC Administration

□ ITG
  - reference
    - *Internet Telephony Gateway Technical Reference*
    - *Additional Administration and Maintenance for Internet Call Center for CentreVu Internet Solutions*
  - LynxOS
  - logins
    - root/atm1995
    - sysadm/sysadmpw
  - connect via terminal connector
    - get nasty error messages in case of hardware faults
  - connect via telnet
    - for all other purposes

ICC Administration

- administer T1 card
  • addpn slot = i5 port=<port number>
- administer E1 card
  • addpn slot =i5 port=<port number> frame=1 lcode=hd63 crc=on
  • use either 1 or 2 as your <port number> Port A on the card is no 1; port B is no 2
  • use addpri command twice, once with each <port number> when configuring both ports
  • restart ITG

ICC Administration

- add the trunk group, routing plan
  o addprp tg=<trunk group no > plan=<plan no >
    - routing plan for trunk group
  o addptg tg=<trunk group no > intf=i5 <port number> aud=100 vid=0 app=0
    - configure trunk group
    - for intf, supply the same slot and port no used in the addpri command
  o restart ITG
    » reset level=cold2
    » addpn, addptg, addprp commands to take effect

ICC Administration

- add dialplan
  - addp dial=xxxx+ dir=out plan=<plan number>
  - don't need to reboot for change in dp
  - '+' has to be added to end of each VDN
    - harder to admin with jokers
    - dial=4???+ doesn't work
    - better for security anyway
- other commands
  - showdp
  - showptg
  - showprp
  - showpri

ICC Administration

- reset level=menu
  - brings up software administration menu
  - IP configuration
    - configure IP Address
      » ALWAYS enter gateway
      » if not, call will fail after a few seconds
    - define system server name
    - configure default IP route
  - upgrade to new software release
    - when asked for location, enter LOCAL
    - give full path of where upgrade resides (/tmp/newload)
  - all these changes will wipe out current database
    - doesn't matter, it's only those 4 commands from above
    - check /mmcs/etc/cw.ini for E1 setting

ICC Administration

□ WebPopMgr
- new way of administering web pop pages
- used when each arena requires different look
- Requirements for WebPopMgr
  - Administer the WebPopMgr to run on the ICM server as a Java servlet
  - Administer the ICM so that all web pop URLs run the WebPopMgr servlet
  - Include a pop file (popFile.txt) in each arena

ICC Administration

- WebPopMgr=JAVA servlet
  - receives parameters from ICM when URL called
    - arena, language, poptype
  - looks for popFile.txt in arena's dir (C:\itg\arena\popFile.txt)
  - tries to find matching language and poptype entry
    - poptype language=value
    - callerconn de=redirect http //de company com/arena/connect ed html
  - does redirection (redirect), template file (format')
  - if no poptype.language, then default.language
  - if no default.language, then use popFile.txt in default arena

5-18

ICC Administration

— Sample popFile.txt

```
SAMPLE popFile txt File

# List of webpops
# callerend  agentidle  vlinit  agentalert  calleralert,  outofservice,
# agentconn,  callercon  plinit
# noagents  busy  queued,  novdn,  cboff,  licenselimit  nores  callback

templateBaseDir=g:\itg\demos
redirectBaseURL=http //icmserver con/demos

# Use a template file for english  template file is a relative path
default en-US=format icc/poptemplate txt
callercon en-US=redirect /icc/pop_callercon pl

# For french. use template file for all but agentconn and agentalert
# Redirect for those two pops using absolute url
default fr=format d \fr\poptemplate txt
agentconn fr=redirect http /frenchserver con/pop_agentconn pl
agentalert fr=redirect http /frenchserver con/pop_agentalert pl
```

ICC Administration

□ always use HTTP tunneling

— use this if most of the call center's customers are behind firewalls (b2b)

— don't want to wait for the default time-out period

— 2 ways

  ○ hardcode in callerap txt file

    – locate param name="alwaysTunnel" value=$alwaysTunnel$

    – change to param name="alwaysTunnel" value="Yes"

  ○ pass parameter in web page

    – <input type=hidden name=alwaysTunnel value=Yes>

ICC Administration

— template file

  ○ static HTML

  ○ BUT can contain variables

  ○ inserted via var

  ○ every var passed in URL encoded parms accessible

— installing WebPopMgr

  ○ in 4 2, need to manually configure JRUN

  ○ change all ICC page pops (in ICC admin) to http://icm company.com/servlet/WebPopMgr

  ○ install popFile.txt for each arena

  ○ check with CVuIS R4.2 Change Description, Chapter WebPopMgr to find exact instructions for JRUN configuration

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ICC Administration

□ Send Page by Arena

— in case certain customers (represented by their arena) want send page button on caller control applet, others don't

— why: send page doesn't always work

— same principle as before:

  ○ either hardcode in agentap txt or callerap txt

    – param name="CanSync" value="Yes"/"No"

  ○ or pass in login page (agent or caller)

    – <input type=hidden name=CanSync value=Yes/No>

— if neither method used, default from admin pages used

ICC Web Page Integration

- HTML code contains <form action="http://icm.company.com/servlet/WT/call ersu" method=post>

- what needs to be done is passed in parameters
  - <input type=hidden name=vdn_ext value=4123>
  - <input type=hidden name=type value=voice> (chatter, callback, cbncoll)
  - <input type=hidden name=language value=fr>

77

Future

- Version 4.3 potential capabilities available May, 2000
  - Multi-Chat
  - Enhancements to multi-tenant
  - Scheduled callback
  - Text chat transcripts

- Support for Dolan and Ascend Gateway available, Summer 2000

- Integration with CRM Central 2000, Enhanced Internet Channel
  - Integration with workflow engine
  - Tailored customer interaction maps
  - Estimated wait time with soft ACD
  - Time of day information
  - Personalized treatment
  - Capture of customer interaction into work item

78

CRM Central 2000 - Enhanced Internet

79

Features of CRM Central 2000 Enhanced Internet

- Voice Over IP
- Text Chat
- Call Back
- Escorted Browsing
- Encryption for Text Chat, URLs and Messages
- Multiple Language Support
- Multiple ITG Support
- Conference & Transfer
- Ability to Customize User Interface for Caller

- HTML Forms Sharing
- HTTP Tunneling
- Estimated Wait Time thru Soft ACD
- Time-of-Day Information
- Personalized Treatment
- Scheduled Callback
- Text Chat Transcripts
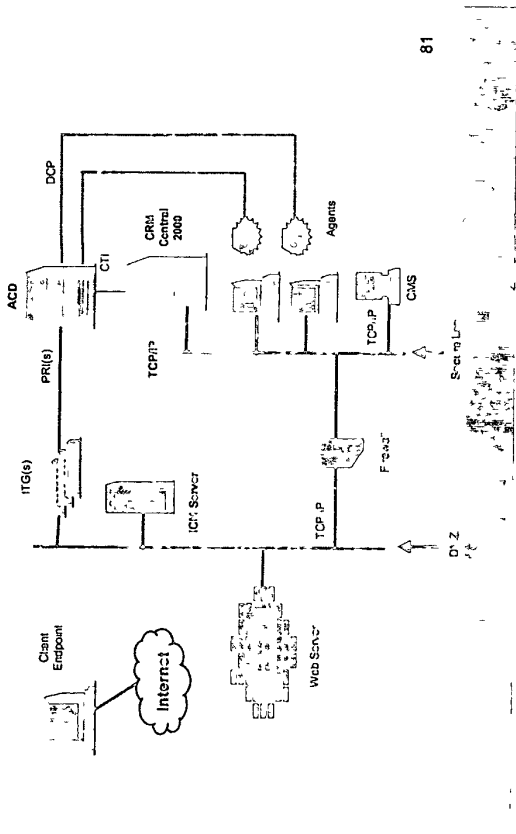- URL Transcripts
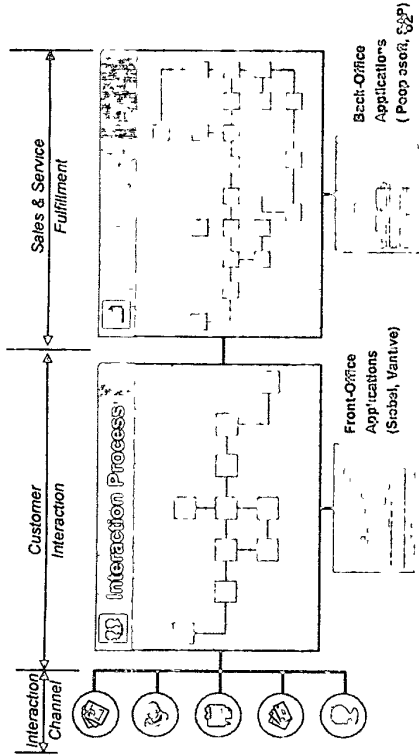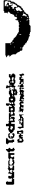- Support for Secure Socket Layer (SSL)

80

5-20

Intelligent Work Management

Sales & Service
Fulfillment

Customer
Interaction

Interaction Channel

Interaction Process

Front-Office Applications (Siebel, Vantive)

Back-Office Applications (Peop oso2, S2P)

SoftPhone Control
Integrated telephony interface for standard call handling functions

Primary Toolbar
Case handling and customer data management controls

Activity/Action Control
Dynamically adjusts according to work being performed

Dashboard Control
Real-time updates of user, team and activity performance

Section Layouts
Standard and custom interface tabs for activity execution

CRM Central 2000
Enhanced Internet Channel

Client Endpoint

Internet

Web Server

ITG(s)

PRI(s)

ACD

DCP

CTI

CRM Central 2000

Agents

ICM Server

TCP/IP

CMS

Singular view of both process and desktop workflow objects

Comprehensive library of pre-defined workflow tasks

Accelerates application development & delivery with improved quality

Integrated storage of existing process maps, business rules and related components

Promotes capture and reusability of enterprise process knowledge

Intuitive process mapping and task configuration environment

Enables enterprise insight through visualization of new and renovated business processes

CVuIS Real-Time to CRM Central 2000
### Enhanced Internet Channel

◇ Technology Migration

- Internet components (ICM, ITG, Firewalls) stay in place
- New ICM version now connects with CRM Central instead of CVCT for call routing
- Web programming can remain the same
- Agents and call routing are administered in CRM
- Uses CRM desktop

◇ Financial Migration Incentives

- Within 12 months of installing Real-Time Communications 100% software credit towards the purchase of CRM Central 2000 Enhanced Internet Channel
- Within 24 months of installing Real-Time Communications 50% software credit towards the purchase of CRM Central 2000 purchase
- Credit capped at $50K

CRM Central 2000
Enhanced Internet Channel
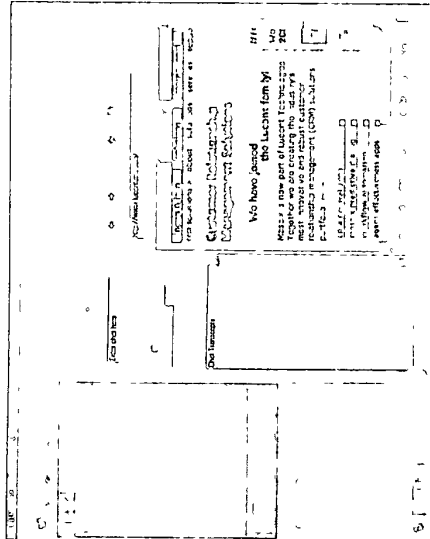
CentreVu Internet Solutions References

▢ CentreVu Internet Solutions Web Page
  – http //info dr lucent com/~tlc/icc/

▢ CentreVu Internet Solutions Solution Guide
  – COMPAS 73234
  – http //info dr lucent com/~tlc/icc/cust_doc_r4/

▢ Lucent Only Maintenance Document
  – COMPAS 73306

▢ Web Page Guidelines
  – http //info dr lucent com/~tlc/icc/cust_doc_r4/Default htm

▢ API Documentation
  – http //info dr lucent com/~tlc/icc/apidoc/default htm

▢ Online Demo
  – http //itcjava dr.lucent com

5-22/22