Building a Global Virtual Contact Center
Session ICS-101

Contact Center Islands of Technology
Virtual Contact Center Basics

- Status data sent from ACDs
- Call arrives in network
- Network queries ICM
- ICM matches call to agent
- ICM responds to network query
- Call delivered to selected agent

Enterprise CTI for Virtual Call Centers

- Inter-site routing
- ACD and IVR
- Screen pop and transfer
- Call lifetime reporting
Network Transfer (IP and TDM)

- Pre-routed call gets network identifier
- Call delivered to agent
- Agent requests transfer
- Transfer sent to ICM
- ICM uses network ID to request transfer
- Call is re-routed (with data)

Virtual Contact Center Routing
Virtual Contact Center Reporting

Universal, Event-Level Data

Customizable Web-Based Tools

Enterprise-Wide, Normalized
Real-Time and Historical Data

Agents

Local and Remote

Carrier Networks

Internet

ICMICM

ACDs

IVRs

Business Apps

Agent Apps

Web Servers

DBs

IP Contact Center

ICM

Peripheral Gateway

JTAPI

Call Manager

Voice Trunks

Voice Gateway

LAN/IP Network

ACD Agents
Contact Center Channels

Fault Tolerant, Distributed Telephony Application
Wide Area IP Network

Contact Center Convergence
Options for Global Contact Centers

- One ICM controls the world
  Single configuration
  Partitionable within an organization
- Multiple ICMs
  Overflow/handoff routing
  Autonomous operation
- New architectures under IP

One ICM—Multi-National Carrier

- Routing is same as domestic case
- Carrier does the integration
- Options depend upon region covered
One ICM—Multi-National Carrier

- ICM interfaces to multiple carriers
- Requires open routing interface from carriers
- Also requires careful engineering

Open Routing Interface Issue

- Open routing interfaces are rare (but coming) outside the US
- Depends upon carrier business relations
Engineering a Multi-Carrier System

- **Latency**
  - 150 ms roundtrip from speed of light
  - What are individual network requirements?

- **Data communication**
  - 100 ms roundtrip for post-routing
  - 400 ms roundtrip for pre-routing only
  - Detailed planning needed for admin data

- **System capacity (single platform)**
  - 700 calls per second
  - Multiple reporting subsystems
  - Should not be an issue

ICM-ICM Communication

- **Supports call transfers between ICMs**
  - Call context is preserved and transferred with the call

- **Technically also support pre-routing between ICMs**
  - However, delay issue may put very strict limitations on possibilities

- **ICM-to-ICM DOES support**
  - Forwarding a route request with context from one ICM to another

- **ICM-to-ICM DOES NOT support**
  - Any other kind of data sharing between ICMs
ICM-ICM Communication Architecture

Any Means of Transferring/Transporting the Call from ACD A to ACD B Supported by ACD A and Carrier 1

Network Transfer (R4.5) Is Also Supported

New Options under IP

- Everything can be network hosted
- Everyone can own a network
- => More functionality and more options
Internet Service Node Architecture

- An IVR is just a Web app with a special ("voice") browser that renders Web pages as voice
- Scaling, fault-tolerance, file distribution are standard Web issues with standard solutions
- With gateways and browsers in the network, the network itself enables IVR service for carrier or customer Web applications

ISN Networking

Network Infrastructure (Carrier, ASP, or Enterprise)
ISN Impact

1. IVR market $1.3B
2. IXC 800 >$20b
   a) 50% call center
   b) Queue at edge
3. ACD market >$2–4B

Network-Wide ISN Switching
Network Transfer on IP

- Global queuing and routing in the IP cloud
- Whole IP network becomes a user-controlled switch

ISN Network ACD

- Global ISN queue
- IP agents anywhere
- Legacy integration
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