



Managing Voice Services

VoiceCon

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What is Voice Management?

Service Availability Management

Network Management

- Network Fault & Performance
- Network Configuration Management
- CoS/QoS Management
- Network Traffic Analysis
- Voice Quality Reporting (MOS Scores)

Tools for Voice Services and Applications

- Capacity Planning Tools
- Network Voice Assessment Tools
- CSCP, SIP, H.323 Protocol Monitors
- VoIP Test and Measurement Products
- Voice Security Gateways

Voice System Management

- Event, Performance, Capacity & Config Management for:
- IPT systems and Unified Messaging
- Traditional and PBXs and Voice Messaging
- Call Center Products

Stages of the VoIP Life Cycle

Stage **0**

Baseline the Traditional PBX

Stage **1**

Conduct a Pre-Deployment Assessment

Stage **2**

Begin the Trial

Stage **3**

Manage the Roll-out

Stage **4**

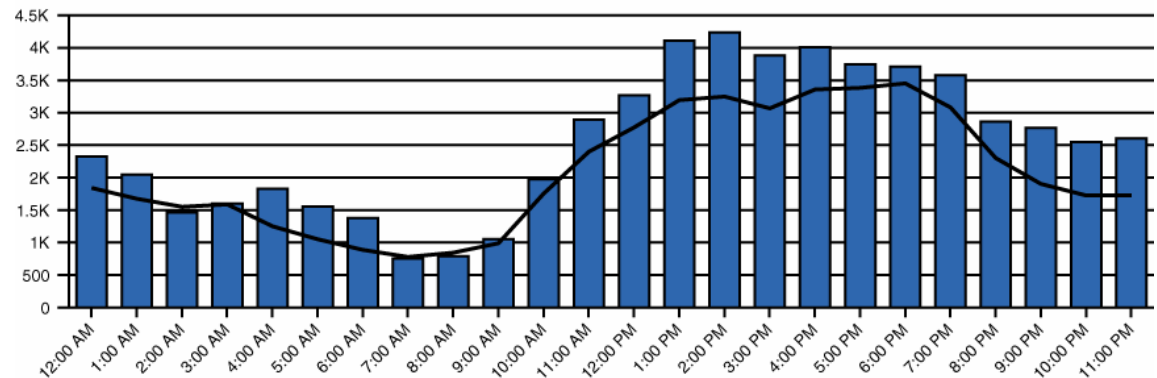
Managing Voice Services

Stage **5**

Manage the Addition of New Services & Apps

Baseline Analysis of the Legacy System

- What is the traffic usage?
- Have you over provisioned trunks or ports?
- What are the system trends?
- What features are available to the users?
- What is the system performance?
- Set expectations in advance!



What Are The System Trends?

Trunk Group Hour
 For: Definity NY
 04/26/2005 - 04/26/2005
 Hours: 00 - 23

Is there a reason for overflow?

<u>Group No / Name</u>	<u>Date</u>	<u>Hour</u>	<u>Type</u>	<u>Size</u>	<u>Dir</u>	<u>Total Usage(min)</u>	<u>Total Seize</u>	<u>Inc. Seize</u>	<u>Group Overflow</u>	<u>Que Size</u>	<u>Calls Que'd</u>	<u>Que Overflow</u>	<u>Que /band</u>	<u>Out Serv</u>	<u>% ATB</u>	<u>% Out Block</u>	<u>WB Flag</u>
22	04/26/05		isdn	23	out												
		12:00				403	143	143	0	0	0	23	0	0	0	0	N
		13:00				315	105	105	0	0	0	0	0	0	0	0	N
		14:00				160	47	47	0	0	0	0	0	0	0	0	N
		15:00				822	96	0	0	0	0	0	0	0	12	0	N
		16:00				510	53	0	0	0	0	0	0	0	0	0	N
		17:00				90	23	0	0	0	0	0	0	0	0	0	N
		18:00				43	7	0	0	0	0	0	0	0	0	0	N
		19:00				33	4	0	0	0	0	0	0	0	0	0	N
		21:00				0	2	0	0	0	0	0	0	0	0	0	N
		22:00				7	4	0	0	0	0	0	0	0	0	0	N

Is "all trunks busy" normal for this time of day?

Pre-Deployment Network Assessment

- Inventory and schematic
- Simulation before testing
- New infrastructure
 - Add bandwidth
 - Deploy VLANs
 - CoS/QoS and Queue selection
- Verify with Assessment Testing



Beginning the Trial – The Case for Service Assurance

Requires Comprehensive Management

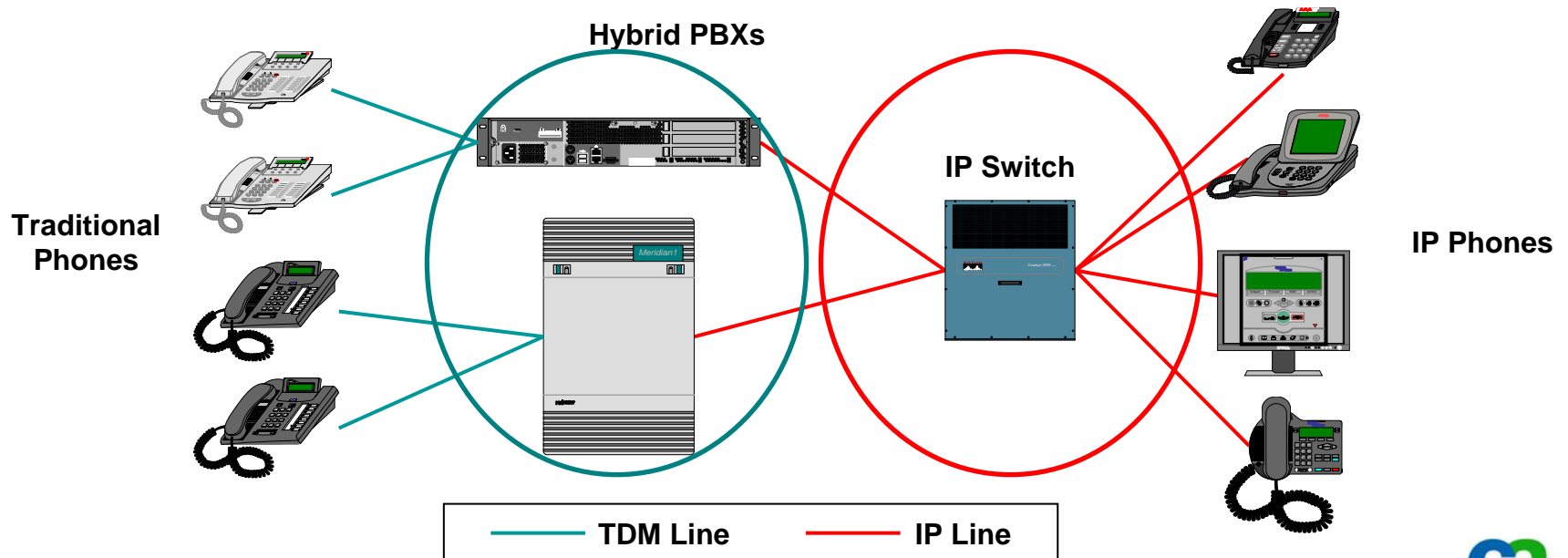
- Network Management
- Service Management (DHCP, DNS, TFTP, etc.)
- Application Management
- VoIP Quality Monitoring – What does the user perceive?
- Troubleshooting – IP or Legacy Problem?
- Performance Validation
- Feature Validation

Tools for Measuring Voice Quality

- Active testing – deploy tools that stress the network and/or simulate active voice traffic. Provides both voice quality and network performance metrics.
- Passive testing – monitor actual RTP traffic on the network and report call quality by MOS score.

Why Monitor the Hybrid Environment?

- Watch for overflow from IP to PSTN trunks.
- Monitor alarms, errors, events for service degradation.
- Analyze traffic and call volumes.



Managing the Roll -Out

Requires Continued Monitoring & Management

- Network Management
- Service Management (DHCP, DNS, TFTP, etc.)
- Application Management
- VoIP Quality Monitoring
- Trouble Shooting
- Resource/Capacity Management
- Policy Management

Capacity Analysis

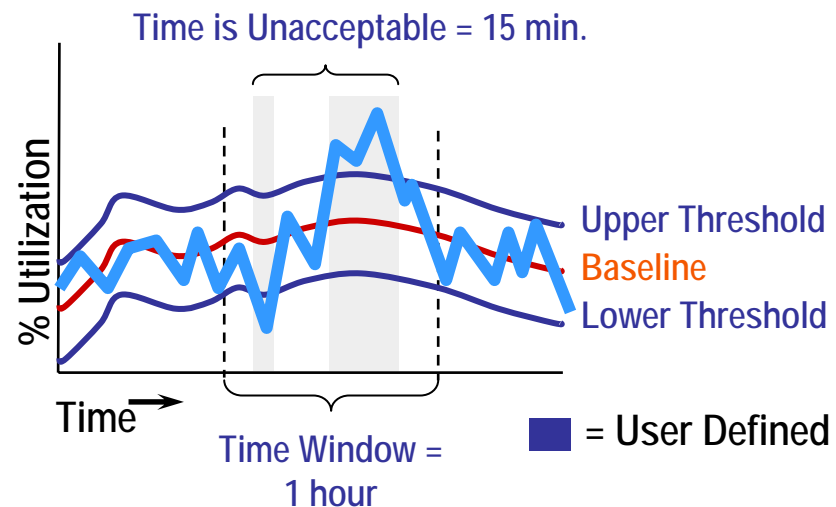
- Voice systems
 - What is my busy hour traffic?
 - What is the grade of service provided?
- Network
 - Predictive capacity planning "what if scenarios"
 - When to upgrade/downgrade facilities on the network
- Cost containment vs service levels

Node Name/Id	Trunk Group Name	Trunk Group No.	Busy Day	Busy Hour	Erlangs	Actual GOS	Trunks Equipped
Definity G3 LA / 4	Ameritec PRI-1	1	09/27/2003	21:00	20.5	0.1	23
Definity G3 LA / 4	Ameritec PRI-2	2	09/27/2003	19:00	100.28	>.6	23
Definity G3 LA / 4	Ameritec PRI-3	3	09/27/2003	19:00	0	0.001	23
Definity G3 LA / 4	Ameritec PRI-4	4	09/27/2003	19:00	0	0.001	23
Definity G3 LA / 4	to HO_TG74	10	09/27/2003	19:00	0	0.001	23
Definity G3 LA / 4	to EIVR D51	11	09/27/2003	19:00	0	0	0
Definity G3 LA / 4	H.323:ICC	12	09/27/2003	19:00	0	0.001	3
Definity G3 LA / 4	OUTSIDE CALL	20	09/27/2003	19:00	0	0.001	23
Definity G3 LA / 4	H.323:PBX7_TG30	30	09/27/2003	19:00	0	0.001	3
Definity G3 LA / 4	1 PRI to Multilink 78	36	09/27/2003	19:00	0	0	0
Definity G3 LA / 4	H.323 to Mlink147	38	09/27/2003	19:00	0	0.001	10

Capacity analysis ensures that resource expense is optimized

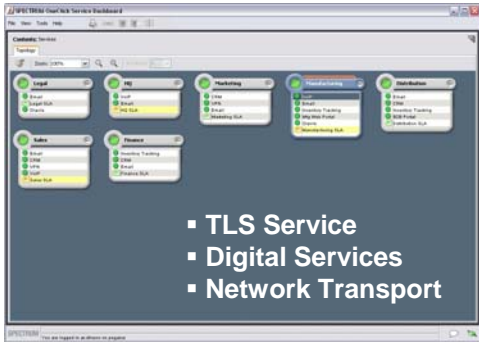
Policy Management

- Going beyond SNMP alarms
- Watch out for PBX/IPT system degradation of service issues
- Is network performance unusual compared to normal behavior?

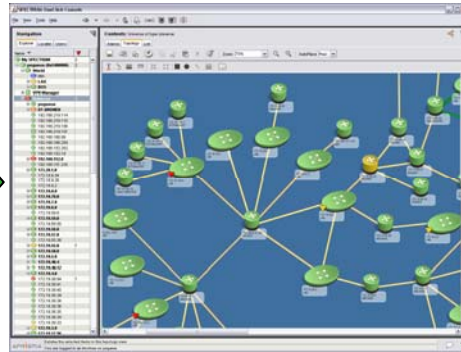


Managing Voice as a Service

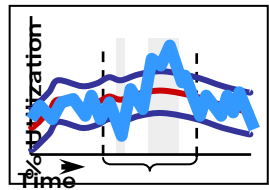
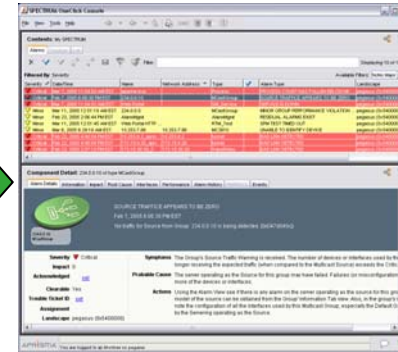
Services Dashboard



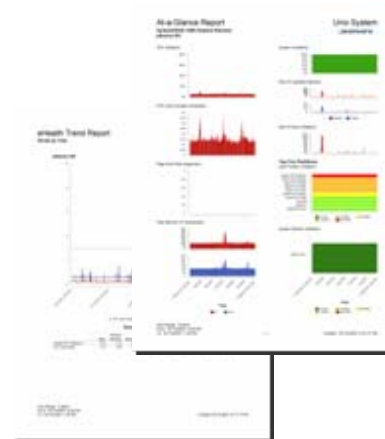
Topology View



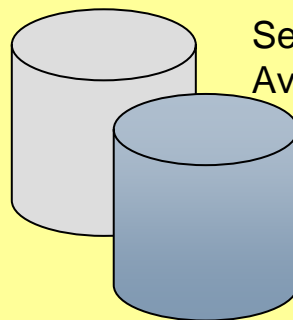
Alarm Detail



Trending & Analysis



Network Health



Services Availability

Data Collection

- Network infrastructure
- MOS scores
- Jitter, voice quality testing
- QoS policies, voice CoS

Plan for New Application Roll-Outs

- What applications will the enterprise roll-out in the next few years?
 - Voice and collaboration tools
 - SAP or contact center applications
 - Presence applications like Cisco Unified Presence Server or Avaya Converged Communications Server
- How will new applications affect bandwidth utilization?
 - Are proper classes of service in place?
 - Capacity planning becomes a critical component.