IPcomm2006

September 25-27 • Gaylord Opryland • Nashville, TN

IPT CASE STUDY

Black & Decker: How We Built Our Global Path to IPT

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What Will Be Covered

- Understanding Our Baseline

- When Would We Shift Technology (and WHY!)?

- Three Key Elements in Any IPT Consideration

- RFI Process, Criteria, Assumptions

- RFI Findings, Vendor Assessments, Decision

- ROI – A Basic Overview

- IPT Design / Architecture Guidelines

- Examples of IPT Deployments

- Key Points to Take Home

- Questions?

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Global Topology

- Approximately 70 sites globally with managed PBXs
  - 95% are Avaya TDM-based
  - 4 deployed Avaya IP-based systems: S8700, S8300, S8500
- Approximately 135 'retail' locations – Service/Repair Centers, Outlet Stores
  - 'Vintage' equipment……….Merlin 4/10, Merlin 8/20……..Partners, Spirits……..
- Approximately 30-50 other small commercial market locations
  - Also non-managed key systems – models vary widely; no Corporate support
- 11 Call Center Sites, supporting 3 Black & Decker business entities
  - 5 in North America: Maryland, Tennessee, Connecticut, Pennsylvania, California, Canada
  - 6 in Europe: UK, France, Germany, Netherlands, Belgium, Sweden
  - Supports both end user calls and retailer/distributor calls
- Voice Mail standardized on Intuity Audix globally
  - Each PBX location has its own voicemail system
  - All systems are networked via 2 message hubs to create global messaging
- Non-PBX sites / users have remote mailboxes 'hosted' on a voicemail system

Remote Worker Profile

- Approximately 2,000 full-time Remote Workers globally
  - 1,000 in U.S.
  - 600 in EMEA and 400 across the rest of the world
  - Typically Sales Representatives and Field/Event Marketing Reps
- 'Typical' Home Worker has………..
  - Cell Phone
  - 2 Analog Lines at Home
  - Broadband Internet connection
  - Remote Access Client; i.e., iPass
  - Laptops have wireless
  - Cisco VPN
  - B&D calling card
  - B&D conference bridge account
  - Voice mailbox and DID extension on Corporate HQ PBX
- Some Managers, Directors, VPs have BlackBerry
  - Used only for remote email access; no connectivity to other applications

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What Drives Us to Change?

- Business Requirements – All the 'Shuns' We Face
  - Acquisitions
  - Consolidations
  - Integrations
  - Migrations
  - Relocations

- Technology 'Refresh' Opportunities in Asset Base
  - End of Lease and/or Maintenance on Firmware Version No Longer Supported
  - Unable to Meet New Expectations with Existing Equipment or Applications

Moving Away from the TDM World

- With the Business Requirements and Technology 'Refresh' Opportunities, there is a need to have a plan of action for implementation. Good chance to review other vendors, rather than 'defaulting' to another Avaya solution.

- TDM-based solutions are no longer a viable alternative, as they were five years ago. With R&D dollars from vendors like Cisco and Avaya going to IPT, the only course of action is to jump on the bandwagon!

- In talking with other companies and benchmarking, a few consistencies were found in IPT deployments:

  - Companies pursuing large scale IPT deployments have high concentration of users in Metro areas, or have large networks with excess bandwidth. Voice is another application to fill the pipe.

  - Emerging companies with no imbedded infrastructure go IPT from the start, due to lower overall costs.

  - Few companies have yet to replace their existing PBX infrastructure without rigid cost reviews and ROI.

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Three Key Elements in Any IPT Consideration

1. Topological changes in 'common equipment' and call processing hardware/software

2. Replacement – or not – of telephone handsets: migrate to IP handsets, or continue using digital and analog sets

   ▪ Tight Integration of LAN upgrade with PBX deployments

   ▪ Drives IPT on the LAN, need for PoE, etc.

3. Use WAN to route calls vs. continued use of PSTN

   ▪ Drives need for QoS, adequate bandwidth

These elements represent separate areas of cost and cost reduction opportunities – key drivers for any IPT decision.

Three Key Elements in Any IPT Consideration

By splitting out these elements, we developed a better analysis of the viability of IPT. These factors could be defined by each vendor as more 'apples to apples', pulling out 'hidden' costs/concerns. These elements also allowed us to review how we would deploy an IPT solution from a specific vendor.

- Common Equipment
- Handsets
- Call Routing

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RFI Process, Criteria, Assumptions

- RFI issued to Cisco & Avaya – IPT Leaders and current strategic vendors for B&D

- Goals were to understand:

  - Overall costs of IPT vs. Current Architecture

  - Product Differentiation

  - Topological Design Drivers

  - Opportunities to exploit 'value add' IPT Applications and Capabilities

RFI Process

- Define 3 Scenarios, typical of B&D's global environment:
  - Hardware & Home Improvement (HHI) – 'real world' example of B&D business units with sites of varying sizes, etc…
    - Can extrapolate this to most other BUs, regions
    - Did NOT include / evaluate call center applications
  - DeWalt Service Centers – allowed focus on 'small office' profile currently underserved by enterprise telephony capabilities
  - Remote worker / mobility – sought to examine specific applications targeted at a growing and costly constituency in B&D businesses.
- HHI Scenario used as the 'driver' of RFI analysis
  - Once a 'large B&D office' configuration is selected, other scenarios viewed in this context
    - Can this direction be leveraged for the other site profiles?
    - Can a different solution be cost-justified for other topologies?

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Criteria for Voice on the WAN vs. PSTN

- Voice mail centralization will require WAN readiness – QoS, Prioritization…

- Additional voice calling over WAN will drive capacity requirements

- WAN is another type of trunking for telephone calls

  - Is the CPM on the WAN less than the PSTN CPM?

  - Depends on overall cost/benefit analysis based on current rates and traffic volumes

    - Do the math…

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Criteria for Voice on the WAN vs. PSTN

- Voice over WAN assessments made regionally based on potential to:
  - Reduce calling costs between high cost regions
    - Especially where traffic volumes may be low, but current prices are high…… Asia, EMEA, Latin America, etc.
  - Use as a 'point solution' in conjunction with a softphone client as a substitute for high-cost mobile roaming.
- Voice over WAN use will increase incrementally as 'critical mass' of IPT infrastructure is put in place.
  - When the infrastructure's there, use it!

Criteria for Voice on the WAN vs. PSTN

- Exceptions to 'the rule'…..

  - Application-based requirements; i.e., in a distributed call center environment where maximum call 'intelligence' must be transferred between agent locations.

    - Higher costs need to be justified by the business

  - Softphone clients necessarily use the WAN

    - Centralization of VPN authentication points will result in 'backhauling' IP voice through the network from the VPN gateway to the user's 'home' PBX extension.

      - Until both Hub & Gateway sites are IP Based

Criteria for IPT on the LAN: Handset Choice

- Any green field site would implement IP handsets

- Any non-Avaya location would install IP handsets when systems are replaced
  - Consideration given to building wiring status
  - LAN Equipment costs

- Embedded base Avaya sites have option to reuse digital / analog sets, replace with IP handsets, or a combination
  - Pending review of wiring plant and BU's appetite for additional investment in wiring, PoE components, etc.
  - Age of existing handsets should be a consideration
  - Assessment of business value vs. cost of handset replacement

The Value Judgment on IP Handsets

- What is the incremental value *now* of an IP handset?
  - Cost comparison today doesn't give an automatic IP set advantage. Add feature functionality isn't that compelling.
- Handset volatility will be high
  - Wired & wireless convergence
  - SIP
  - More desktop / telephony collaboration and convergence
    - Will we want as many 'hard phones'?
- Wiring plant status can also impact this decision!

Make handset decisions on a site-by-site basis using criteria defined above and site-specific considerations.

RFI Process – Data Assumptions

- LAN Upgrade – Enables PoE
  - 20% estimate based on HHI model tied to LAN EOL
    - Upgrade includes PoE
    - Lease of LAN equipment @ 4 Years vs. 3 Years
  - Facility cable plant requires review for some sites
    - IPT on LAN requires 100M

- WAN Upgrade – Enables Voice on WAN
  - 20% estimate to current WAN costs are for capacity – US Based Costs
    - Upgrade of Frame Ports to T-1
    - Upgrade of PVC to 768K
    - Verify capacity or add secondary service
  - International Locations WAN up lift could be 40-50% of current WAN costs
    - Current VPN solutions do not provide QOS
    - Requirements for secondary VoIP capable network
      - MPLS / Frame / Private Line

Current HHI Environment
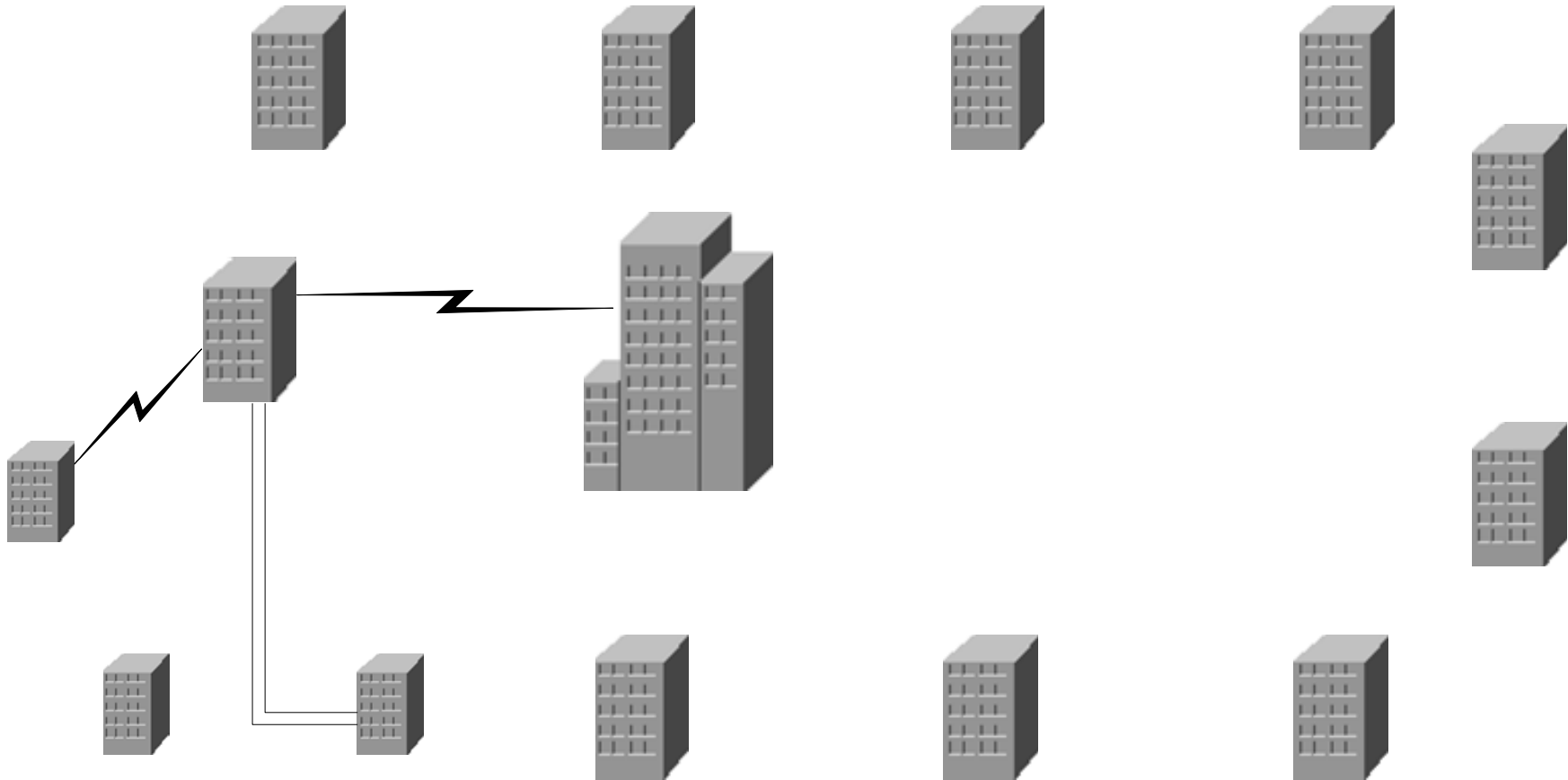
Converged HHI Environment
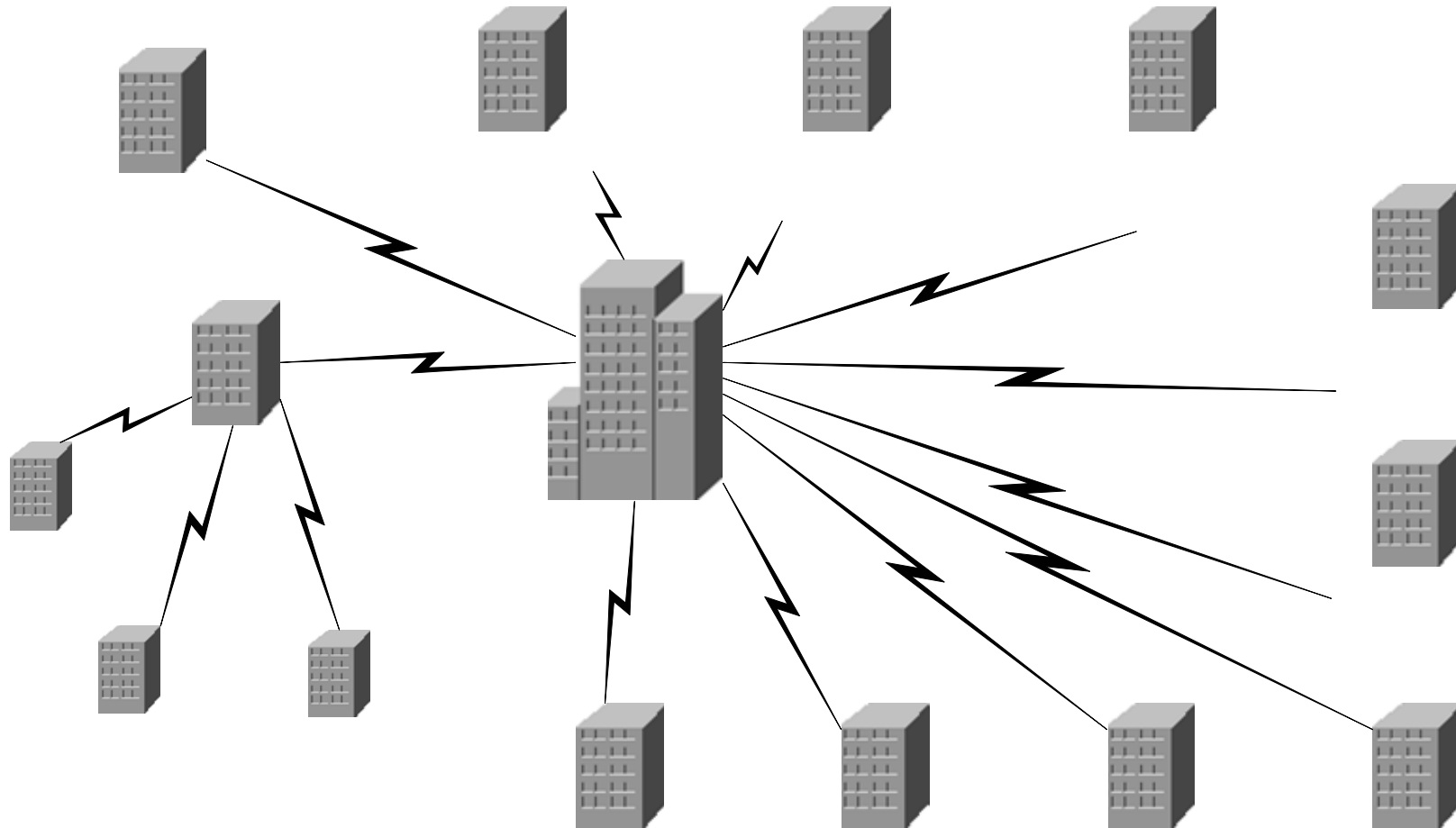
HHI Scenario Cost Comparison

- **Assumptions**
  - Removed call center components / costs
    - Purpose of RFI was to standardize the scenarios. Call center applications are too varied between vendors to compare fairly.
  - Otherwise compared existing lease and maintenance costs of current base to a new, pure IP topology
    - Including all new IP handsets
  - Assumed 2 call processing 'hubs'
    - Lake Forest & Mexicali
  - Centralized voice mail in Lake Forest for all gateway locations

- **Net cost of IPT is lower vs. current costs with either vendor**
  - Found on average a savings of 18% in TCO with centralized model
  - Cost profile shifted with centralized model to 'common' equipment
  - Must include LAN / WAN considerations in RFI responses!
  - Also include associated IPT and Network management requirements

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Conclusions on Avaya

- Enables decisions related to the 3 'Key Elements of IPT' to be made independently

- Avaya IPT offers transition, evolution, and migration of current voice applications.

  - Allows paced migration to centralized call processing & voice mail

  - Allows continued use of current digital / analog handsets

  - End-user transparency, unless new features are selectively implemented

  - No changes to high-visibility call centers, where large investments have been made

- Avaya allows decisions about use of IPT on the LAN – IP handsets, wiring plant, investment in PoE – to be made separately from IPT infrastructure & call control centralization.

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Conclusions on Cisco

- Cisco IPT leverages current WAN infrastructure

- But, Cisco provides no 'migration' path

  - Requires 100% 'forklift' replacements of current telephony systems

  - Requires 100% deployment of IP handsets on LANs

- Call center applications very complex

  - Forklift replacements required for current imbedded systems at *significant* additional cost

  - Replication of current functionality is questionable

  - Integration with current call center 'adjunct' systems uncertain

Common Findings Between Avaya and Cisco

- Either will work!

- Data network impacts
  - Both Vendors require LAN & WAN enhancements
    - Cisco IPT Phones require less customization of LAN Services
    - Lower Power consumption in LAN equipment
    - Lower investment in NMS tools than Avaya

- RFI Conclusion: Avaya provides better overall IPT direction for Black & Decker in the near term 3-5 Years.
  - Provides demonstrated cost containment / reductions while migrating to IPT
  - Allows evolutionary approach
  - Consistency in user experiences globally
  - Leverages investments already made
  - Achieves stability in highest-visibility call center applications

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ROI – A Basic Overview

Infrastructure:

TDM PBX/VM Costs: *excluding Call Center*

- Lease *(Commonly 5 year cycle)*
- Maintenance *(Doesn't include sets)*

'Pure' IPT Replacement (w/ Centralized VM):

- Lease *(Co-exist LAN/WAN schedule?)*
- Maintenance (Month 13)
- IP handsets

LAN / WAN Costs

- Lease
- Maintenance

LAN 'uplift' cost of PoE

WAN 'uplift' cost for QoS, Capacity

Total Annual Cost Comparison:
Cost Reduction:

Annualized Costs	
Current	**New**
$	
$	
	$
	$
	$
Current	**New**
$	
$	
	$
	$

Total Annual Cost Comparison: $ $

ROI – Other Considerations

<u>Usage, Additional Cost Reduction / Increase Potential:</u>
- Toll Bypass Reduction – Big opportunity in Asia, not so much in U.S.
    - Built-In Audio Bridge – Eliminating service bureau audio bridge costs
    - Softphone – Use offsets mobile roaming and/or calling card charges
- Day 2 Support – Don't underestimate, <u>*don't*</u> overlook!
    - Server Management
    - Firmware / Software

<u>A Few More Points…</u>
- RFI Scenarios are 'representative;' BUT, do not reflect 'reality' across the board. 'Real' costs of IPT will vary by site / BU; some sites will cost more than current; others will show savings +/- 18.5%.
- Maximizing IPT savings dependent on coordinating and leveraging lease end dates on data and voice hardware.
- 'Hybrid' model reusing digital sets could further lower costs; tradeoff between reduction in set costs and increase in 'common equipment' costs.
- Cost modeling must be done site-by-site.

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ROI – The Payoff

If the new costs are less than the current costs, you've got a winner!!

But…

Make sure you get a comprehensive picture of your current costs, including things you might not deal with now! *Understand your baseline first...*

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Enterprise IPT Design Architecture

- Use centralized deployment model
  - 'Hub' site with call processing & centralized voice mail (will need to migrate to this once QoS is in place & capacity is reviewed)
  - 'Gateway' sites linked to hub for call control
    - Centralized administration
    - Available gateways in multiple 'sizes' to scale up and down – even to very small locations of <10 stations.
  - Gateways retain PSTN trunking
    - At least initially; later, trunking can be consolidated
  - Gateways operate in Local Survivable Processor (LSP) mode if connectivity to hub is lost
    - Voice mail call-answering is lost

Enterprise IPT Design Architecture

- Specific design configurations developed for each business unit based on:
  - Logical regional topologies
  - Calling communities of interest
  - Overall cost/benefit analysis
  - Application-specific requirements (i.e., call centers, etc.)
- Ratios of gateways-to-hub based on:
  - Total station size
  - Geographic dispersion of sites
  - 'Overlay' of WAN topology
  - Other site-related considerations
- Hub locations must be transitioned to IP-based call processing first
  - Gateway sites scheduled based on priority order

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IPT Deployments We've Tried…

- Softphones for mobile access to office extension, replacement for some roaming

- Extension to Cellular: simultaneous ringing of desk number to cell phone; alternate use between both

- Greater degree of integration with desktop applications

- IP Agent for call centers: home workers, call center contingency planning, overflow calls or extended hours coverage, outsourcing

- Virtual call center – took one primary location, and through acquisition, extended the functionality from Maryland to Tennessee, then recently to Toronto.

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IPT Deployments We're Thinking About…

- Meet-me conferencing built into call processor

- Greater degree of integration with desktop applications

- Presence / SIP

- Variety of 'find me / follow me' features; hot desking

- Unified Communications 'overlay' to Voice Mail – Trialing in Q4,'06!

  - Integrated access to voice mail, email, calendar, conferencing

  - Unified view of voice mail messages & email messages

  - Speech portal as alternate to touch-tone interfaces

    - 'Listen to emails' & replay via voice mail

  - Voice messaging 'outside' B&D community

- Regional calling gateway in Asia, routing calls over WAN to tandem switch in CO. Goal is to leverage cheapest rates for international calls.

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Key Points to Take Home

- Understand Your Baseline

  - Current Costs – Lease, Maintenance, Network Support

  - Current Configuration – Define scenarios appropriate to your business

- Consider any / all related LAN, WAN costs

  - Engage internal Network Support team, or hire consultant

- Break out ROI into the Three Key Elements - This helps to structure your cost analysis into manageable categories

  - New Topology with 'common' equipment, call processors

  - Telephone handsets – New IP handsets, or 'old-fashioned' digital / analog

  - WAN vs. PSTN call routing – know the BLENDED cost of each

- Don't underestimate how different this is from the TDM World!

QUESTIONS?

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