

NETWORK SUPERVISION

**VoIP Network Management
Finding the Right Tools
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Agenda – Key Questions

- What are the key metrics you must measure and manage?
- What tools are available to capture these metrics?
- How can you get visibility on the level of voice quality actually being delivered?
- How does the management of voice systems fit into the overall enterprise IP network management structure?
- What will it cost to implement an effective network management system?

FCAPS and Network Lifecycle

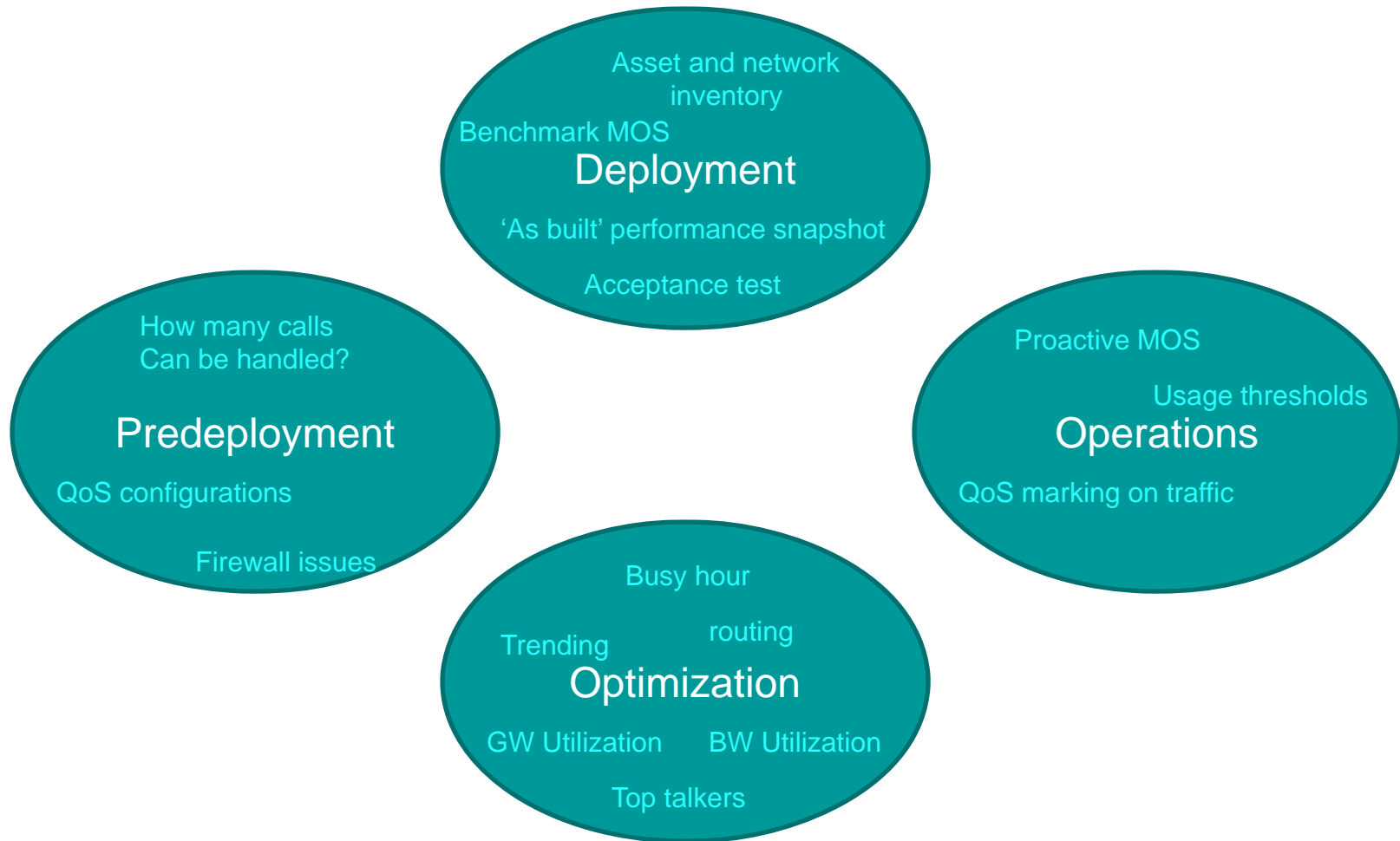
- **F**ault Management
- **C**onfiguration Management
- **A**ccounting
- **P**erformance Management
- **S**ecurity

Network Lifecycle

- Predeployment
- Deployment
- Operational Monitoring
- Network Optimization
- Troubleshooting tools



Key Metrics to Measure



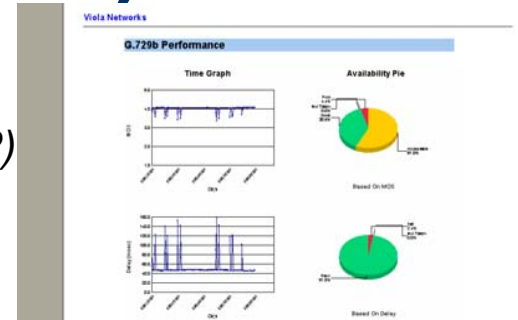
“Gottcha” areas

“My network infrastructure is all new and over-designed for VoIP”

- Mobility
- Softphones
- Remote teleworkers (home based call center agents)
- Multivendor VoIP infrastructure

Management Tool Areas (FCAPS)

- Fault Management
 - Alarms, events, alerting, trending, (not all SNMP)
 - Integration with Manager of Managers (MoM)
- Configuration Management
 - Good vendor tools exist for “one to one” system configuration
 - Third party tools for “one to many” configuration
- Accounting
 - CDRs, IPDRs collection and processing
- Performance Management
 - User experience, MOS, signaling, capacity management, specialized VoIP needs
- Security
 - New area of VoIP management; DoS attacks, Rogue phones, E911, SPIT

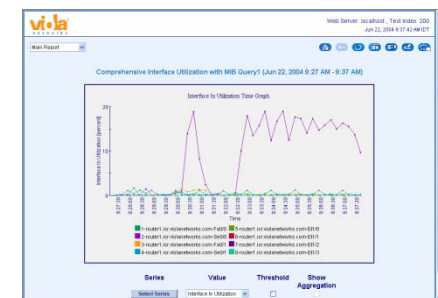


How this Fits with Overall IP Management

- Most VoIP networks are deployed on converged networks (at least WAN) to realize cost benefits
- Some WAN management vendors will argue it is just another application
 - *VoIP is usually first “real time” application, special needs*
- VoIP problems are usually traced back to converged traffic interactions or shared resource problems
- Need management tools that have visibility of all traffic but understand special needs of VoIP

How to get visibility into level of quality?

- Active vs Passive monitoring
- Network Measurement point important
 - *Endpoint*
 - *Carrier demarcation, LAN/WAN*
 - *NNI*
- Important to gather troubleshooting info while problem exists
 - *Automated troubleshooting*
 - *Customer self help*



Management System Cost?

- Rule of thumb
 - *Management system costs 10% to 15% cost of VoIP system*
- Important to budget for this expenditure as part of project planning
- Management services now available to save capital expenditures

Summary - Conclusions

- PBX Vendors are renewing efforts in management tool development
 - *Look for improved tools in the future*
 - *Won't handle Multi-Vendor management issues*
- Vendors still rely heavily on 3rd party partner products
 - *Look for 3rd party products with strong partner relationship to Vendor*
- VoIP specialty tools are required
 - *Especially in the areas of Performance Management and Security*