



Planning for Application Deployment



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Agenda

- Key Drivers
- Planning for Network and Applications Demands
- Planning on Service Objectives Management
- Advanced Planning requires advanced visibility and ..advanced Analytics
- Diagnose and Mitigate Application Performance Problems
- Q&A

The Evolution in Planning Practices

Key Drivers

1. Evolving from silo centric planning to **holistic planning** (Application + Servers + Network)
2. **Planned for Converged environment** where multiple applications (Voice, Video, Data) share a common infrastructure
3. **Planning users experience** performance problems independently of the infrastructure (SLA Planning)



The Evolution in Planning Practices

Key Drivers (Cont'd)

1. *Location Centric Planning.*

Applications perform differently for dispersed and remote users who are increasingly demanding consistent performance

2. *Readiness assessment.*

Applications are often deployed without sufficient analysis: the impact is often unknown before deployment

3. *On-going Planning*

Application profiles change as Data Centers are centralized and servers are consolidated

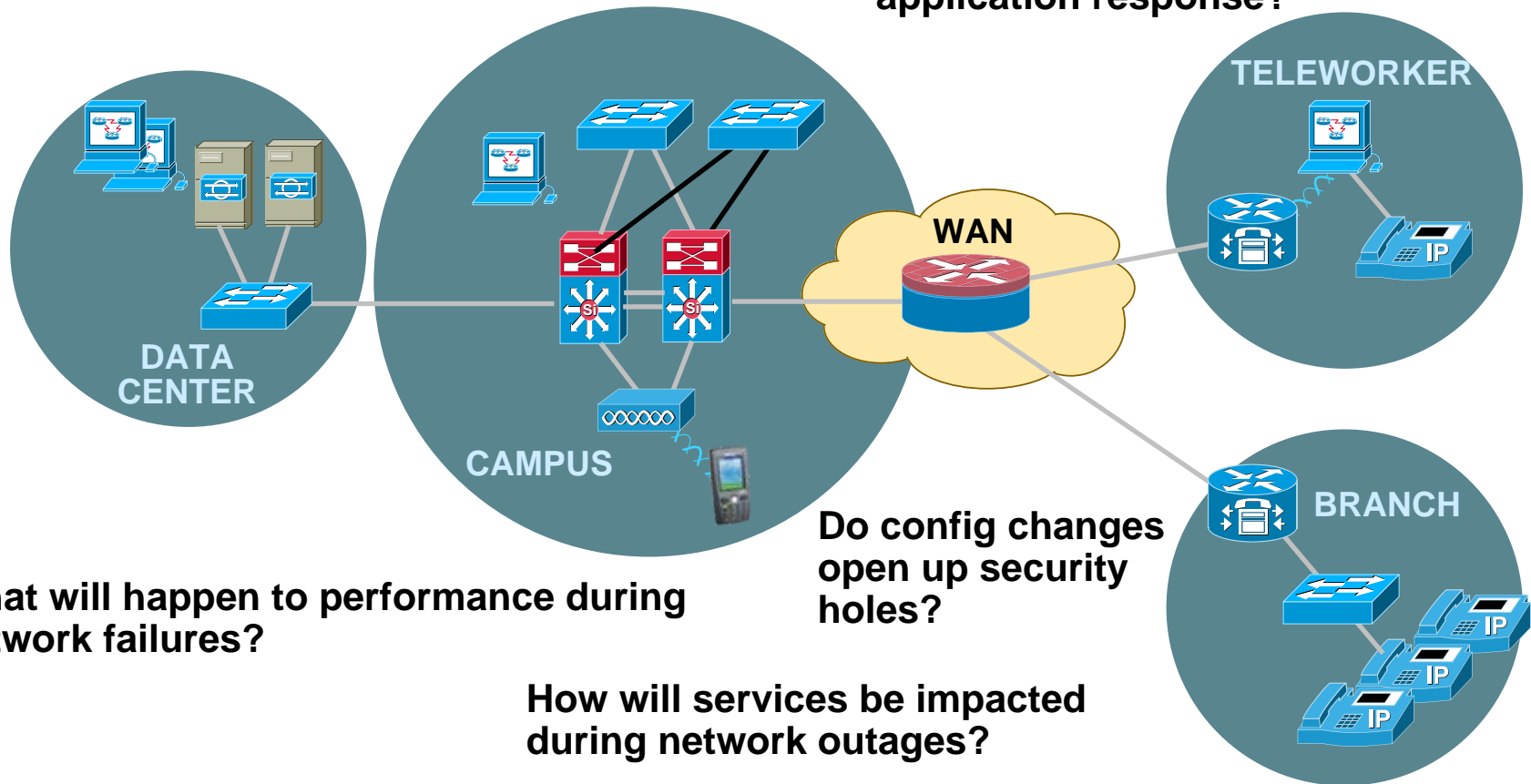


Planning for Network and Application Demands

Key Challenges

What happens if I add new applications?

What is causing slow application response?



Planning on service objectives *Requires New Thinking*



From...

- Capacity Management Centric
- Management focused on network resource performance
- Measure link utilization every few minutes
- Measure and predict performance per QoS
- Collect raw data for central processing
Limited visibility



...To

- SLO Centric
- Management correlates and controls network and application performance
- Measure Performance for individual application flows every few milliseconds
- Intelligent processing according to service objectives
- Ubiquitous intelligent instrumentation, synergize with Control, Optimization and Performance

Critical Questions to Answer

Steady-State Before Problems Occur

1. What applications run on my network
Real-time and historical
2. What business services are supported
3. What level of “service” is provided
Bandwidth (load), performance (RTM),
availability
Baseline.....thresholds
Real-time and historical reporting
4. What components do they utilize
Network, server, application, app comps
Connectivity, dependency, utilization, cost
Real-time and historical reporting
5. How do I measure Service Level
delivery
Real-time and scheduled reporting
Policy definition

Problem-State When Problems Occur

1. Is the problem “real”
Service visibility
Service level measurement (Real-time and
Historical)
Transaction awareness (tagging, observation,
simulation)
2. What is the extent of the problem
Impact analysis – *isolated, intermittent,
geographical, systemic etc*
3. What is causing the problem
Service to infrastructure correlation
Network, server, application, app comp,
(backend, storage)
4. What is the business impact
Business service priority and impact value
Shared infrastructure dependencies
5. How do I improve/fix the problem
Policy definition/enforcement
Resource reallocation



Advanced Planning



Advanced Planning requires...

.... Advanced Visibility

Metrics	Benefit
Layer 3-7 Millisecond Granularity	<ul style="list-style-type: none">▪ Identifies events effecting QOS and applications at millisecond level of detail.▪ Factor <i>transient</i> application performance degradation in Planning Analysis.
Monitoring and modeling	<ul style="list-style-type: none">▪ At a glance, quickly identify interfaces and classes in the network not delivering the required QoS based on millisecond analysis of traffic profiles▪ Troubleshoot quality issues and determine if the network is the problem.▪ Go back in time to <i>“replay”</i> and analyze performance degradation
Deep Packet Classification Engine	<ul style="list-style-type: none">▪ Measure Bandwidth and End to End performance for any traffic flow of interest using well known and intuitive match rules▪ Forecast and Baseline analytics should match the granularity of each application transaction for more efficiency

... And Advanced Analytics

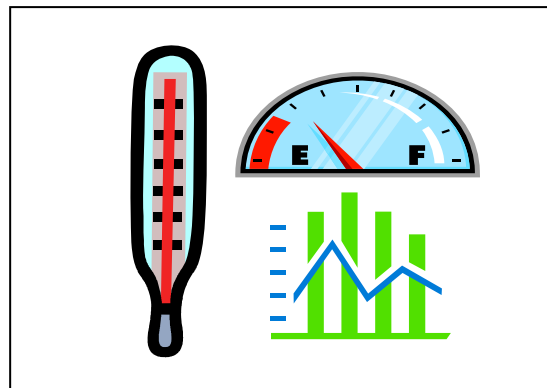
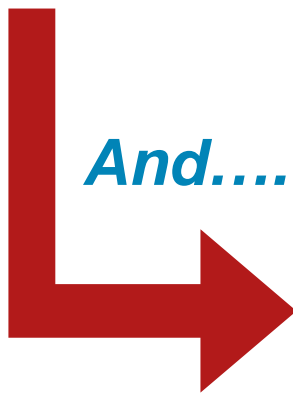
Metrics	Benefit
Application Mapping Dependencies	<ul style="list-style-type: none">▪ Build “Flow” and protocol perspective of business services dependencies and transaction performance▪ <i>Reconcile application delivery with Infrastructure performance</i>
Congestion Analysis	<ul style="list-style-type: none">▪ Network-wide QoS-aware congestion summary per class and per link
QoS Sensitivity Analysis	<ul style="list-style-type: none">▪ Quantified analysis of the impact in terms of required bandwidth based on loose or strict QoS targets for the various traffic types on your network.▪ Apply analytics to translate performance metrics into QoE (Quality of Experience)
Flow Aggregation and Correlation	<ul style="list-style-type: none">▪ Aggregate and correlate thousands of Flows into actionable information to predict performance levels per Users/Line of Business/Locations▪ Correlates risk of SLA violation with risks of performance degradation

Diagnose and Mitigate Problems

Diagnose

1. Baseline Quality of experience and capacity requirements objectives per users/applications
2. Measure, Analyze and Forecast E2E metrics (jitter, packet loss, delay etc.)
3. Measure, Analyze and Forecast
Response Time
Transaction Time
4. Measure, Analyze and Forecast Voice/Video Quality of Experience (MOS, etc.)

And....



Mitigate

1. Prioritize Capacity Management upgrades based on resource/application dependencies to decrease **MTTR**
2. Apply **Readiness Assessment** techniques and control application deployment: to reduce risks and delays by certifying new applications
3. Enable **Control and Optimization** techniques such as shaping, policing, compression, caching etc.

