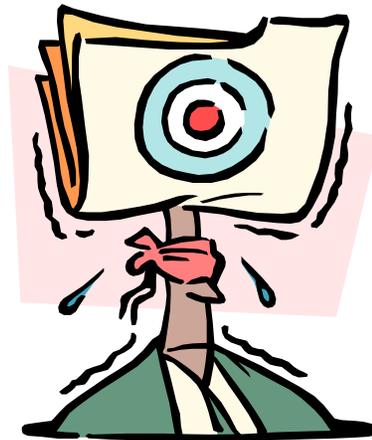


E-Service Level Management

New Players, New Challenges, New Opportunities



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Today's Agenda

- What is Service Level Management?
- What are the components of Service Level Management?
- How has the Web changed Service Level Management?
- MSPs – Who are They?
- Can MSPs deliver what the promise?
- How can Policy-Based Management help ensure SLAs?
- A buyers guide to MSP services.
- Predictions for the Future of SLM.

What is Service Level Management?



Service Level Management

- An operational process which seeks to minimize unexpected systems degradation, and maximize consistent system performance.
- A lifecycle process with constant planning, monitoring, and provisioning adjustments required to maintain the desired service levels.
- A quantitative process that necessitates the proactive collection and analysis of data.

A PEOPLE Process



Service Level Agreement

- A written definition of the services that an organization will support for end-users, and the expected availability percentage of these services.
- Provides expected service recovery timeframes in the event of a service interruption.
- Quantifies the expectations that end-users should have for IT services, in addition to the expectations that the IT dept. will enforce for the adequate safeguard of IT resources.

Why SLAs are Gaining Importance

- Applications are deployed globally
 1. Order management – Service provisioning
 2. Customer Relationship Management
 3. Supply Chain Management
- The XSPs need to generate more revenues
 - And hopefully profits ?
- Management vendors are diving in deep:
 - HP has been focusing on Service Level Management since 1998
 - BMC, CompuWare, NetScout have all made acquisitions and thus have joined the market

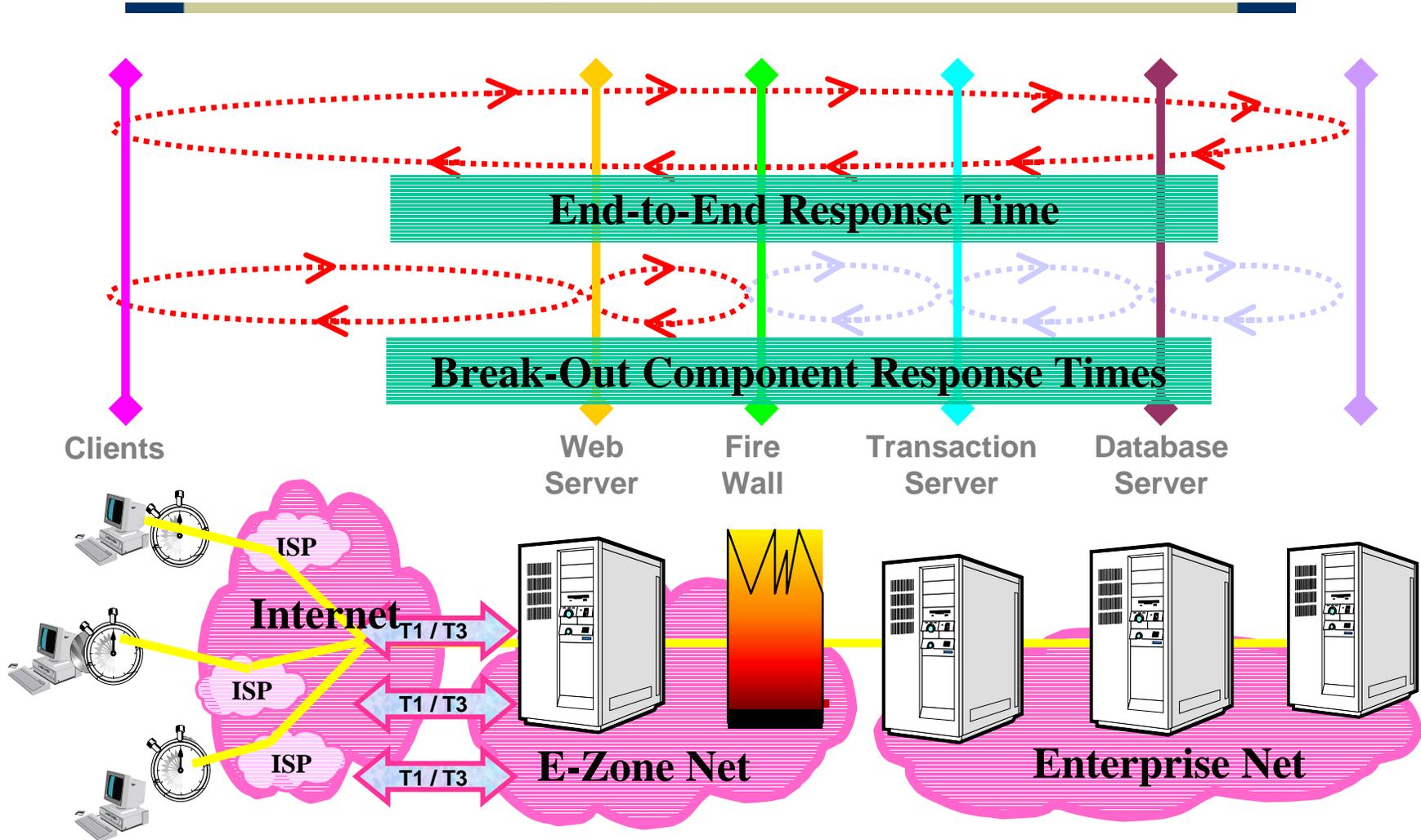
SLA = Defined Availability

- It is important to determine the availability for the individual components and then to summarize the end-to-end picture
- $\text{Availability \%} = (\text{MTBF}) / (\text{MTBF} + \text{MTTR}) \times 100$
 - MTBF - Mean Time Between Failure
 - MTTR - Mean Time to Repair
- ASPs need to calculate on an end-to-end basis

The times are a changin' . . .



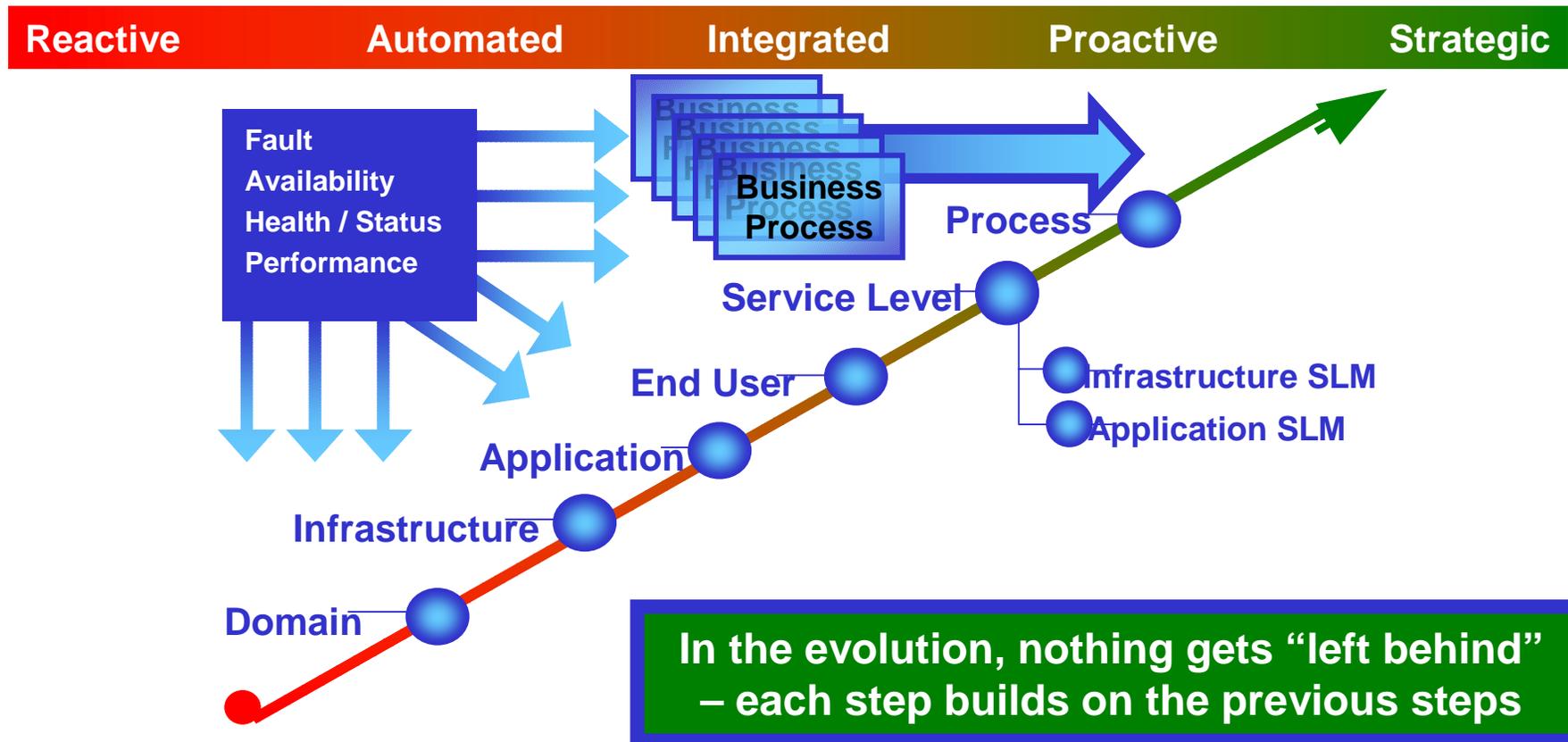
Source: Forrester Research, Inc.



Key SLA Parameters

- Availability - 24x7x365 access to all services - a utility.
- Performance integrated with security
- Speed and flexibility - Assemble and re-assemble components on the fly to meet new business needs.
- Scalability - without adding complexity
- SLAs - Not just one-to-one but one-to-many

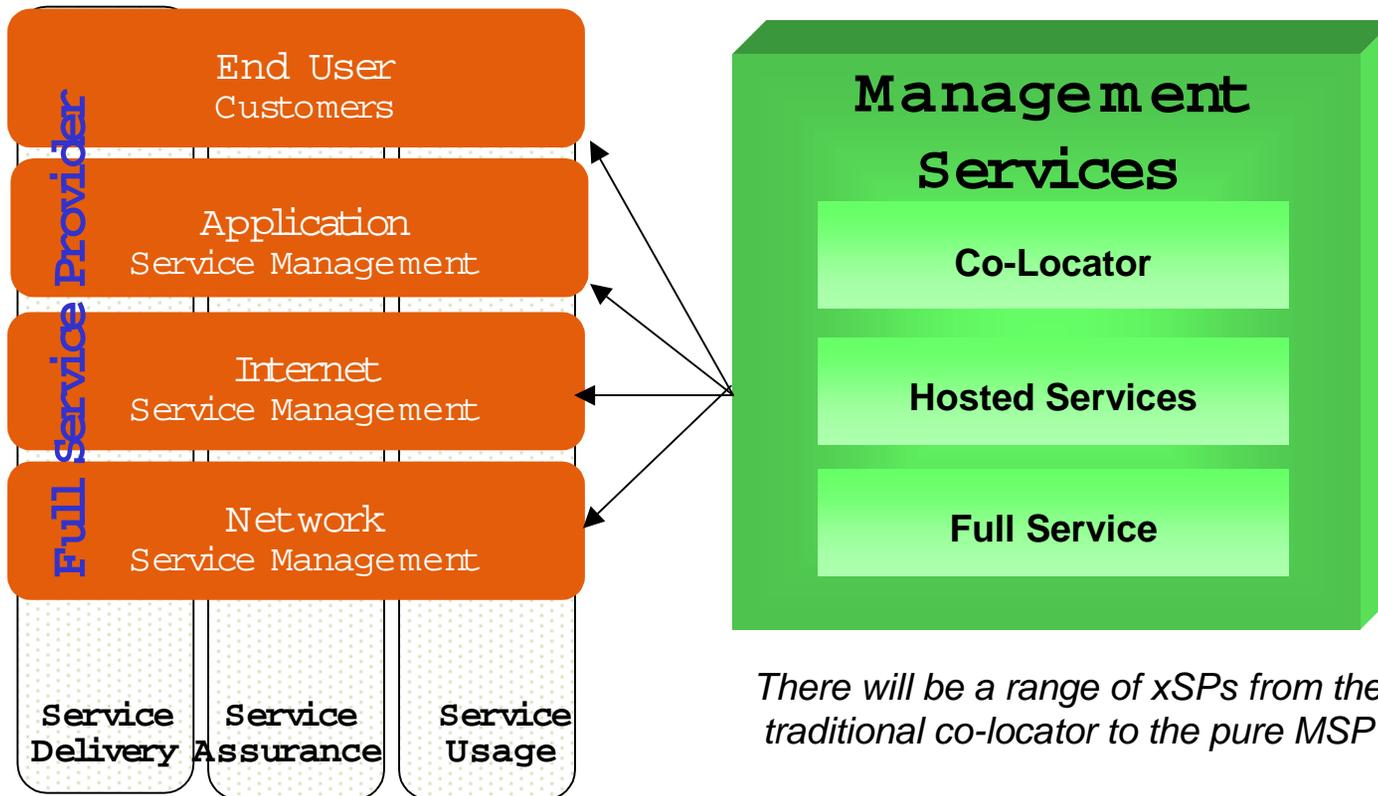
Proactive SLAs



Source: The Meta Group

Further Definition

Integrated Service Management

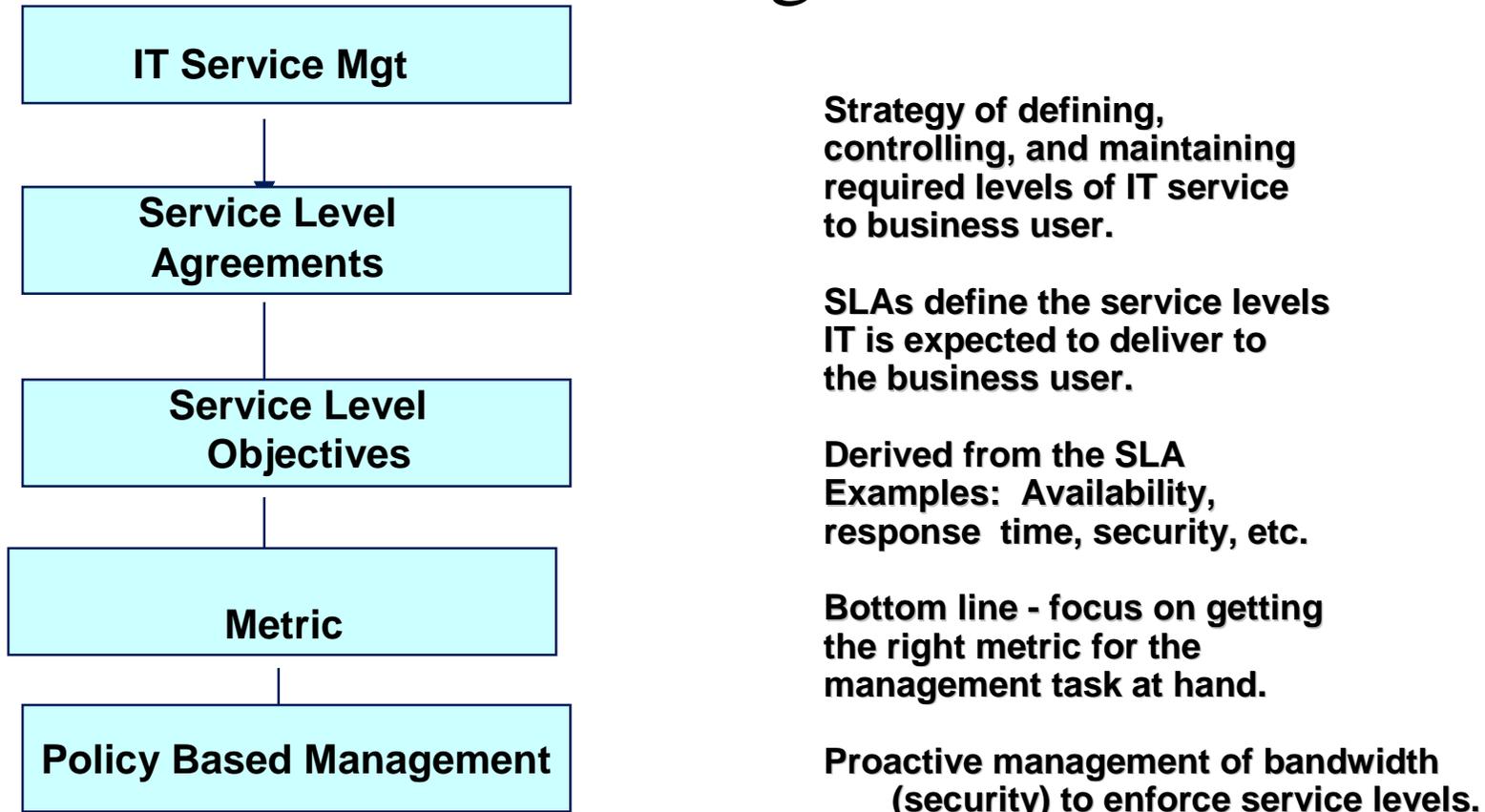


There will be a range of xSPs from the traditional co-locator to the pure MSP

Components of SLM



IT Service Management - Defined





Who Provides SLAs? (XSPs)

- ASP - An online channel for packaged software. Applications vary by ASP but generally focus on Web applications (BroadVision), Enterprise Resource Planning (ERP), and Customer Relationship Management (CRM) packages.
- ISP - A business that offers Internet access. Some, like AOL, offer it to millions of customers.
- MSP - Management Service Provider (MSP) - Provide availability and response time (crude) service level agreements (SLAs) for ASPs or large .coms

How the Web has changed SLM



Peter Sevcik's Study

- He compared Internet response times between 1995 and 2000 data collected by Keynote systems.
- The good news is that average response went from 12 seconds to 6 seconds.
 - The bad news is that latency is increasing and the numbers are again scaling upward.
- Server performance and access links are getting faster.
- However, Internet page load and security overhead is increasing
 - Problem for on-line trading, ASPs, etc.
- Kevin Tolly has recently run tests on thin client performance on ASP based applications.

Service Level Management on the Web

- A 1999 survey conducted by Jupiter Communications LLC showed that 47% of end-users who experience technical problems the first time they connect to a Web site will simply go to another - nine (9%) percent will never return.

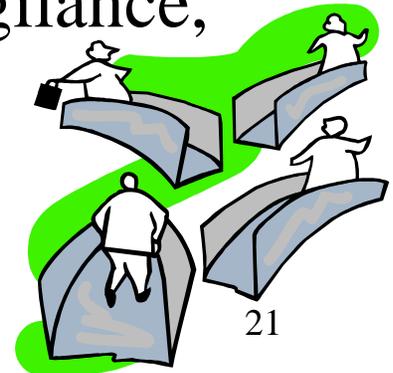


Pain Threshold Online

- End users will tolerate
 - 8 seconds maximum (moving to 4-6 seconds) to show something on a Web page
 - 6 seconds for end user to decide to stay or leave
 - 6 mouse-clicks maximum for end user to find the required information or complete the transaction
- If the Threshold is exceeded?
 - Take business to a competitor
 - Hold onto their money
 - Make use of more costly channel - call center, local sales representative, etc.

Coming to a network near you!

- Supply chain event management
- Tracking at the transaction level
 - Not even at the application level
- Space being invaded by traditional management players (CA BizWorks) and an ebusiness application providers (i2, Red-Knife, Vigilance, etc.)



The Industry is in Flux...

- Exodus bought Service Metrics which has three offerings:

SM-WEB™ -This tool measures the download times of all of a Web site's individual objects and components, 24-hour snapshot of Web site speed, DNS time, or other metrics and shows content and service errors in a Web browser format.

SM-WEBPOINT™ - Mirrors customer interactions through domestic and international backbones. Allows design alterations to be made and tested.

SM-SCENARIO™- Generates sample transactions (Web stock quote) and provides feedback on user experience.

More Change

- Exodus bought Global Crossing's Web hosting business
- WorldCom bought Navisite
- The line of distinction between ASPs, Web hosting companies, and MSPs is blurring
- Metromedia Fiber bought SiteSmith



MSPs

What are they?

Getting the Acronyms Straight

Management Service Provider:

- Provides only services specific to network and systems monitoring, event notification, and SLA reporting.
- Typically dispatches customer's staff to fix problem.
- Does not implement and maintain IT infrastructure for customers—only tools to manage and alarm on infrastructure availability or performance issues.

Managed Service Provider:

- Outsources IT Dept. Services, from SLAs to break-fix.
- Typically Sells bundles of “turn-key” solutions to organizations lacking an IT Staff.
- Sometimes provides data center facilities (or co-lo partners) as part of the outsourced solution.
- Sometimes procures equipment (lease or rental), and then houses this equipment for the customer.

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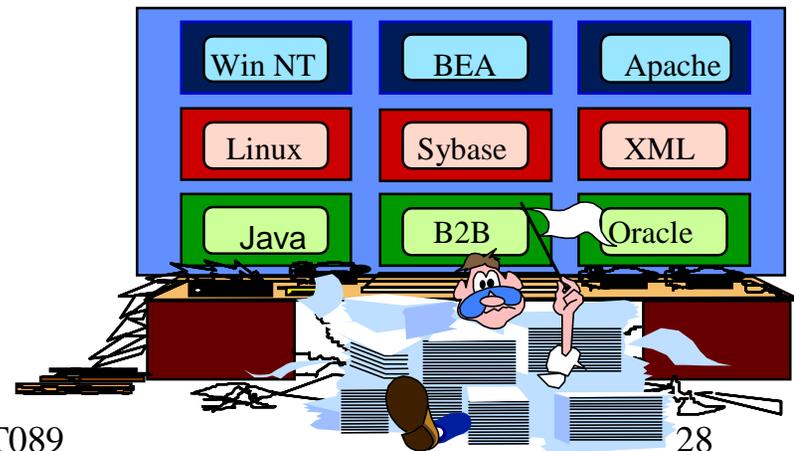
Why MSPs?

- Traditional Tools are Too Difficult to Maintain:
 - Software
 - Hardware
 - Configuration
 - Training
 - Consulting
 - Maintenance



How did we get to MSPs?

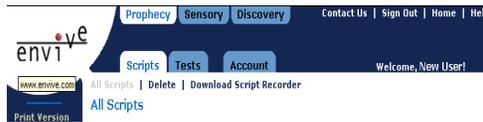
- Legacy management systems (CA, Tivoli, etc.) could not manage the new Web QoS environment.
- Specific vendors built portals to enable customers to quickly view management information for various level of management.
- Some portals morphed into MSPs and some integrators morphed into MSPs.



- Log On

Example of MSP Service

- Select a Service



- Load Testing
- Service Level Monitoring

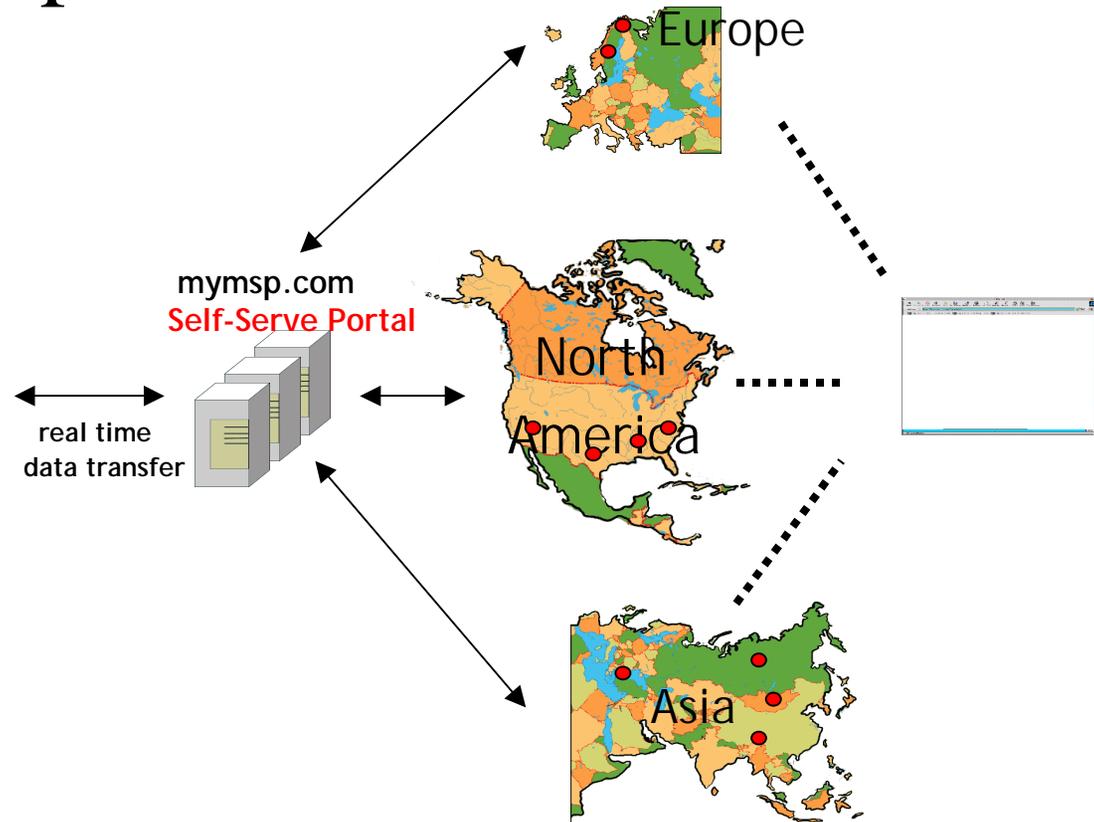
* start/stop anytime

- View Results



- Performance alerts via e-mail or pager

Wednesday, August 22, 2001



New Class of MSPs

- Who are the new MSPs?
 - FusionStorm - formerly system integrators
 - Inteq - formerly OpenView integrators, formerly a training company
 - feature monitoring for \$250 a month (vs \$500 for Exodus)
 - LoudCloud - former founder of Netscape
 - NetSolve - formerly WAN provisioners
 - Nuclio – spin off from system integrators
 - SilverBack - Web server management
 - TriActive – Small Co. Outsourcer & MSP
 - Xor - Turnkey solution - build to manage





The MSP Association

- 2nd Wave
- Candle
- Entuity
- Envive
- HP OpenView
- InteQ
- iSharp
- Luminare
- Manage.com
- ManageIT
- McAfee.com
- NCMX
- Nuclio
- SilverBack Technologies
- SiteLite
- SiteRock
- Storability
- StorageNetworks
- TriActive
- Up 7/24



Examples of New MSP Network Offerings

- iCAN Provider Suite (available 3/2001):
 - iCAN Meter – collects data from across domains and provides performance reporting for applications, servers, and network activity
 - iCAN Assure – defines and measures SLAs so service providers can enforce SLAs
 - iCAN Bill – provides ability to customize cost of services offered, based on actual customer usage
 - iCAN View which provides information and analysis via customized reports



Examples of New MSP Offerings (cont'd)

- Andersen's Infrastructure Resource Management Service – Monitoring done via VPN using Entuity's Eye of the Storm technology
 - \$3000 per month and has consultant component to do monthly reviews
- SilverBack – InfoCare Service 2.5 – Now support SSL encryption and locate appliance at customer site which sends back information via VPN.
 - Service runs \$2-4K per month and \$1-3K for installation

Can MSPs Deliver?



Service Provider SLA Challenges

- ASPs are relying on other network providers (through peering arrangements), servers, and network devices
- Therefore, their Service Level Agreements (SLAs) must reflect the aggregate of the end-to-end QoS
 - The lowest common denominator of the total end-to-end systems and networks
- Recently, UUNET has published peering agreement arrangements
 - Most peering remains a private conglomerate

E-Business Service Level Management

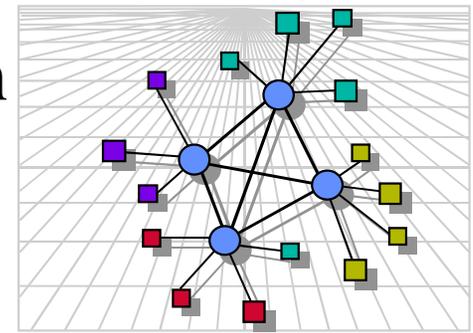
- Business (b2b) communities obsolete 1-to-1 SLAs
 - Require one-to-many, many-to-many SLAs
- Need a view of collective QoS
 - “SLA Chains”
- No one has a complete toolset to address these new challenges.

Technical Challenges

- Web Quality of Service
- The Internet only provides simple quality of service (QoS)
 - Point-to-point best-effort data delivery
- Web QoS must address
 - Priority of users (browsers vs. buyers)
 - Priority of applications
 - Peak utilization policies
- Security and Performance are but separate poles of the same equation
 - Many companies are implementing IPSEC with VPNs
 - There are ways to encrypt and still read the IP prioritization bit

Web QoS

- Providing traffic classification and providing priority (special handling) to certain information flows
- Special handling can be improved error rates, lower network transit time (latency), etc.
- It may include a service level for high availability



Which MSPs will win?

- Those providing a service rather than a global outsourcing approach.
- Those can requisition new services most efficiently and deliver on service level agreements.
- Eventually, the big will eat a lot of the small fishes. (This may well be the Telcos).



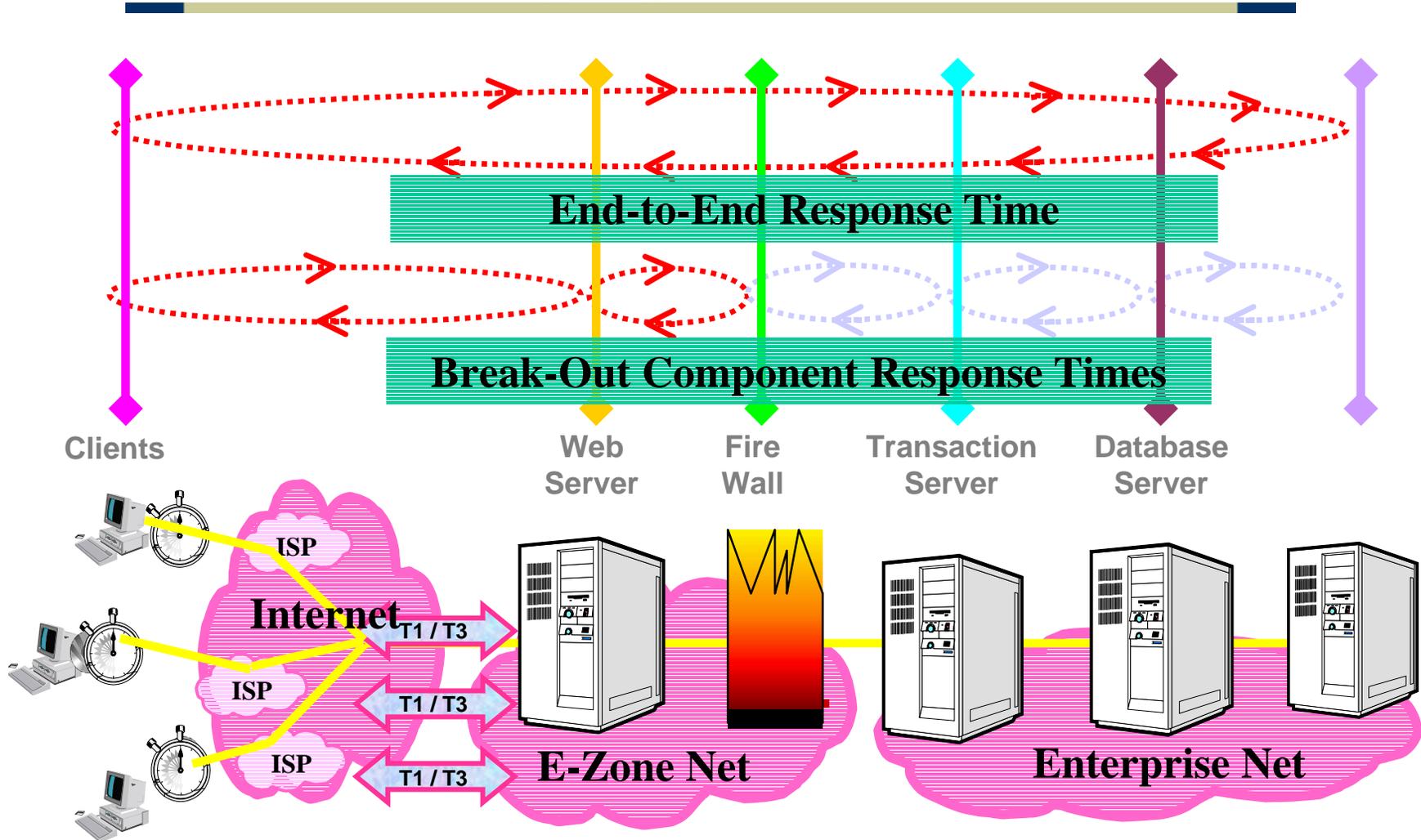
Top SLA Citations

- Consequences for service disruption are not defined
- Lack of SLA Management Tools
- Inability to measure response, performance, and availability
- Absence of clear mechanism to resolve problems
- Lack of SLA experience



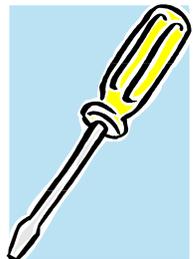
Scan of the Tools that MSPs Use





New SLA tool almost every week

- HP OpenView has a long tradition in the measurement arena and MeasureWare has been brought into the Internet Age (Vantage Point Performance)
- Brix Networks has hardware and software solution
- Oblicore is also playing in this space
 - They provide a auditing device for customers that deliver reports on performance and measure latency of applications
- One of the real tricks will be managing across firewalls and enterprises and tracking SLAs across companies, XSPs, IXC, CLECs, etc.





Convergence of Functions

WebTrends has released CommerceTrends 3.0 which analyzes “click-stream” data for Web sites

- It is integrated with Hyperion Solution Corporation’s Essbase online analytical processing server
 - Utilized for multidimensional analysis of visitors’ behavior
- Pricing starts at \$25K for Commerce Trends and \$12,500 for OLAP Manager component
- WebTrends has now entered the Web personalization space of Accrue, net.genesis, Vignette, etc.

E-Marketplace Management

Tivoli's new offering manages marketplace membership services, policy-based security, and network events

- It integrates with marketplace software from Ariba and i2 Technologies
- Tivoli E-Marketplace supports
 - Sun's JAVA Management extensions
 - XML
 - IPSECurity
 - Microsoft's SOAP
- Pricing is based on transaction volume



Web Performance Tool Categories

- Site Management
 - Freshwater Software, Keynote, Service Metrics (Exodus)
- Transaction Monitoring
 - Evity, Mercury Interactive, Optimal Networks
- Human Response Monitoring
 - Customer Insites and WebCriteria
 - Utilize bots to examine Web ergonomics
- Live visitor monitoring
 - Vividence
- Hybrids
 - Appliant, Envive, ProactiveNet (Keynote), etc.

Sitara - a Hybrid

- It provides bandwidth management
- It monitors traffic
- It classifies traffic
 - Rate shaping
- Provides Policy based Web caching





Keynote Systems

- They currently provide the Business 40 log
 - From approximately 100 sites in the US, Keynotes logs into major Web sites over T-1 and measures average response
- Keynote has recently introduced the Keynote Perspective Transaction service which measures performance in Web transactions, such as online shopping and banking
- Keynote is now rolling out the Keynote Consumer Perspective
 - Measures performance over DSL and Cable modem connections

Policy Based Network Management

Auto-Pilot
For
eManagement

What is a Policy

Policies are simple rules, such as:

"If <condition(s)> then <grant access to resources>."

Sample conditions include:

- Time of day
- User or group name
- Application

Source and destination Sample resources include:

- Bandwidth
- VPN (Virtual Private Network)
- FTP (File Transfer Protocol)
- HTTP (Hypertext Transfer Protocol)

Different Mechanisms for PBNM

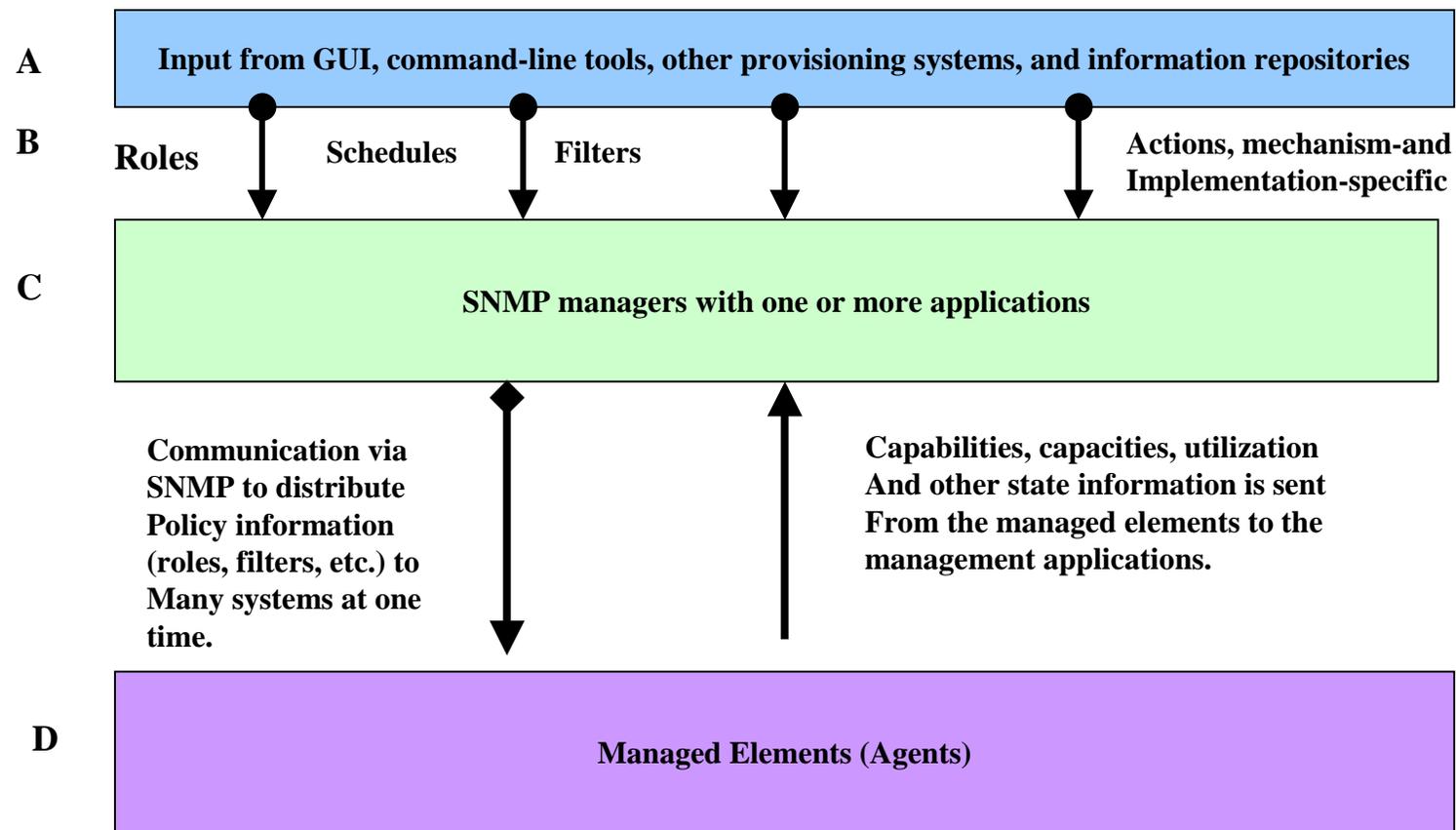
- IP Type of Service: (IP TOS bit)
 - Defines 8 classes of traffic priority within a standard IP packet header.
- DiffServe: (New IETF Standard)
 - Defines 64 classes of traffic priority within DiffServe enabled devices or IPv6 standard packets
- ReSerVation Resource Protocol: (RSVP)
 - A signaling mechanism used by an application to request a pre-determined quality of service for a specific transaction.

The Latest Effort from the IETF

- SNMPconf – Configuration management with SNMP
- Lets network administrators change network behavior from a single location using a single interface
- The heart of snmpconf is the Policy MIB
- IPOptical, Sitara, and SNMP Research International have begun work to support the Policy MIB module
- Snmpconf lets router experts create templates that can be less experienced administrators can then implement



An SNMP-CONF Enabled Policy System



Common Open Policy Service (COPS)

- A configuration protocol being adopted as a defacto standard for policy configuration.
- Complements the SNMP Conf. Initiative.
- Communicates parameter changes and firmware configurations necessary to implement the logistical elements of a policy change.



HP OpenView PolicyXpert 2.1

- Configure tiered service levels end-to-end across servers, switches, shapers, and routers using Differentiated Services (DiffServ). Use existing Unix servers as PolicyXpert servers and/or agents to provide these differentiated services.
- A key differentiator for PolicyXpert is support for end host policy agents. These agents can mark traffic for priority treatment and/or rate limit traffic at the server.
- Evaluation copies may be downloaded from the external OpenView website.

Buyer's Guide to MSPs





MSP vs. FSP

- MSPs focus on monitoring and reporting of systems, databases, and applications only.
- FSPs broaden out into additional service areas for their clients; such as:
 - Desktop Support Services
 - Call Center/Help Desk
 - Architecture, Design, Integration, Configuration, and Training Services.

Traditional MSPs

- Coradiant:
 - OutSmart and OutSight Services
- InteQ:
 - InfraWatch, InfraStream
- NetSolve:
 - ProWatch for LANs, WANs, Exchange, and Security

Traditional MSPs...cont.

- Nuclio Corp:
 - Nuclio Fusion Services Suite
- SilverBack:
 - InfoCare
- SiteROCK
 - Reliability Operations Centers (ROCs)



Full Service Providers (FSPs)

- AltaWworks Corporations:
 - Soup to Nuts services for B2B Exchanges
- FusionStorm:
 - MSP Services plus Co-lo Services, DBA Services, etc.
- TriActive:
 - Focus on lifecycle services for smaller customers.
 - PC inventory, Asset Mgmt., Help Desk, etc.



Boutique MSPs

- EasyVista.com:
 - Focus on PC mgmt. services for small companies.
- Internet Security Systems:
 - Self-defined as an “MSS”: Managed Security Srvcs.
- Mission Critical Linux:
 - Web-based, remote MSP services for managing Linux system environments.
- Selis Networks:
 - B-Watch Portal technology for creating custom Portal monitoring solutions. Popular with other MSPs.

SLM Predictions





Predictions

- Many MSPs and FSPs will not receive the funding to achieve critical mass.
- Traditional Tool Vendors will continue to cross the line into the MSP space.
- Traditional MSPs will add complementary services in a heated effort to reach profitability.
- The MSP market will consolidate drastically between Q'3 2001 and Q'2 2002.

Predictions...cont.

- Partnerships will be critical to the survival of MSPs.
- Traditional Telcos and Integrators may emerge as leaders in the MSP space.
- PBNM will be adopted slowly in light of the current technology slowdown.
- MSPs will become much more conservative in their SLA guarantees and marketing claims.

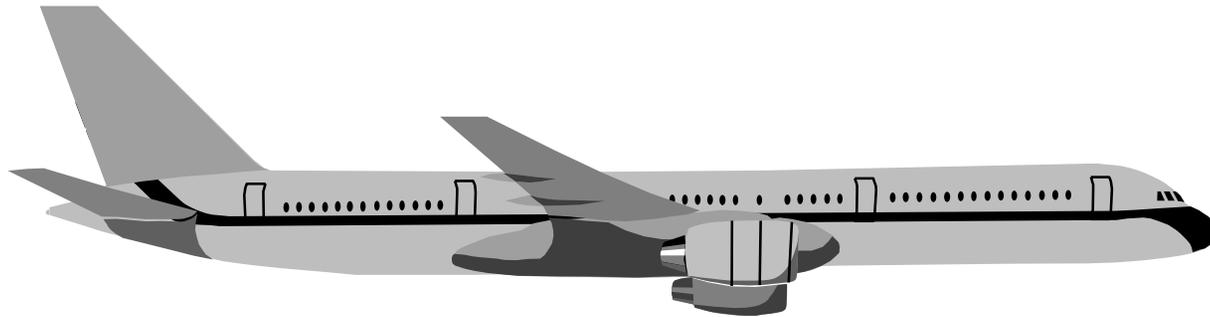


Supplemental Information

- www.caching.com
- www.aspindustry.org
- www.cs.purdue.edu/coast/
- www.dmtf.com
- www.ietf.org/html.charters/snmpconf-charter.html
- www.java.sun.com/security
- www.mspassociation.org
- www.securityportal.com/
- www.tno.nl/institu/fel/intern/wkinfsec.html
- www.whatis.com/proxy.htm
- www.xml.com

Wrap-up

Please fill out the course survey forms before you leave.



Have a Safe Journey Home!
Thanks for Attending the Session !



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