Verizon Managed Network Solutions
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Agenda

Current Versus Desired States

Definition of Managed Services

Total Cost of Ownership

Impact of Downtime

Selecting a Managed Services Provider

Summary
### Why Are We Here Today?
**Current Versus Desired States**

<table>
<thead>
<tr>
<th>Current</th>
<th>Desired</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Carrier &amp; Contract Info&gt;</td>
<td>Build a single global network</td>
</tr>
<tr>
<td># US Sites  # Global Sites</td>
<td>Raise network availability to 99.9%</td>
</tr>
<tr>
<td>&lt;Management Strategy&gt;</td>
<td>Increase bandwidth to enable SAP roll-out</td>
</tr>
<tr>
<td>&lt;Network Availability&gt;</td>
<td>Maintain (preferably reduce) network cost</td>
</tr>
<tr>
<td>&lt;Average Network Utilization&gt;</td>
<td>Improve network reporting and trending</td>
</tr>
<tr>
<td>&lt;Application Issues&gt;</td>
<td>Build network to support future convergence</td>
</tr>
<tr>
<td>&lt;Equipment&gt;</td>
<td>Resolve Router EOL with minimal capital impact</td>
</tr>
</tbody>
</table>
What Is a Managed Network?

- Network Operations Center
  - Management Tools
  - Staff Expertise
  - Process
- Project Management
  - Technical Expertise
  - Project Expertise
  - PM Tools
  - Past Templates
- Engineering and Planning
  - Technical Expertise
  - Broad Design Experience
- Field Engineers and Parts
  - Accessibility
  - Rapid Availability
  - Staff Expertise
  - Process
## Essential Elements of a Managed Service

<table>
<thead>
<tr>
<th>Category</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fault Management</td>
<td>Detection, Correlation, Isolation, Recovery, and Reporting</td>
</tr>
<tr>
<td>Configuration</td>
<td>Provision, Change Management, Auto Discovery, Back-Up/Restore, and Inventory/Asset Management</td>
</tr>
<tr>
<td>Accounting</td>
<td>Usage Tracking and Service Cost Allocation</td>
</tr>
<tr>
<td>Performance</td>
<td>Collection, Reporting, Analysis, and Capacity Planning</td>
</tr>
<tr>
<td>Security</td>
<td>Access Control, Policy, Audit, and Breach Detection</td>
</tr>
</tbody>
</table>
Architected Availability vs. Managed Availability

<table>
<thead>
<tr>
<th>Architected Availability</th>
<th>Managed = Network Restoration Availability and Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Design</td>
<td></td>
</tr>
<tr>
<td>• Infrastructure design balanced with business objectives</td>
<td></td>
</tr>
<tr>
<td>• Includes diversity, back-up, equipment sparing, and maintenance strategy</td>
<td></td>
</tr>
<tr>
<td>• Balanced with business objectives and costs</td>
<td>• True measure of a Managed Services Provider</td>
</tr>
<tr>
<td></td>
<td>• Includes Management Discipline (process and resources):</td>
</tr>
<tr>
<td></td>
<td>• Ability to detect and restore network events quickly</td>
</tr>
<tr>
<td></td>
<td>• Change Management Discipline and Performance Reporting</td>
</tr>
</tbody>
</table>

Financial Institution
- Downtime generally measured in millions
- Loss of financial trading
- 99.999% availability
- On-site sparing, on-site techs
- Fail-over CPE, diverse network

Retail Industry
- Downtime generally measured in thousands
- Inability to process credit transactions
- 99.9% availability
- Remote spares, techs
- Dial back-up

Range of Customer Needs
Total Cost of Ownership

Visible Costs

- Physical costs:
  - Transport
  - CPE, including software and break/fix
  - Diversity and redundancy
  - Management tools, hardware and software:
    » Fault, configuration, asset, performance, security
- Human capital to perform the functions:
  - Network planning
  - Monitoring
  - Fault isolation and restoration
  - Equipment maintenance
  - Performance assessments
  - Training

“There’s more to network management than the management of network components.”

Source: Gartner Research
January 2003
Total Cost of Ownership

Hidden Cost Estimates

Profit-Draining Potential

A mere minute of downtime can bring big losses.

Source: ALINEAN, January 2004

<table>
<thead>
<tr>
<th>Business Application</th>
<th>Estimated Outage Cost Per Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply chain management</td>
<td>$11,000</td>
</tr>
<tr>
<td>E-commerce</td>
<td>$10,000</td>
</tr>
<tr>
<td>Customer service</td>
<td>$3,700</td>
</tr>
<tr>
<td>ATM/POS/EFT</td>
<td>$3,500</td>
</tr>
<tr>
<td>Financial management</td>
<td>$1,500</td>
</tr>
<tr>
<td>Human capital management</td>
<td>$1,000</td>
</tr>
<tr>
<td>Messaging</td>
<td>$1,000</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>$700</td>
</tr>
</tbody>
</table>

How much is the prevention of an hour of downtime worth?

Source: The Yankee Group, November, 2004

A mere minute of downtime can bring big losses.

Profit-Draining Potential

Source: ALINEAN, January 2004

<table>
<thead>
<tr>
<th>Business Application</th>
<th>Estimated Outage Cost Per Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brokerage</td>
<td>$4,500,000</td>
</tr>
<tr>
<td>Banking</td>
<td>$3,600,000</td>
</tr>
<tr>
<td>Media</td>
<td>$1,150,000</td>
</tr>
<tr>
<td>E-commerce</td>
<td>$1,100,000</td>
</tr>
<tr>
<td>Retail</td>
<td>$90,000</td>
</tr>
<tr>
<td>Transportation</td>
<td>$89,500</td>
</tr>
<tr>
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<td>$0M</td>
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<td>$.5M</td>
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<td>$1.5M</td>
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<td>$2.5M</td>
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<td>$3M</td>
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<td>$3.5M</td>
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<td>$4M</td>
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<td></td>
<td>$4.5M</td>
</tr>
<tr>
<td></td>
<td>$5M</td>
</tr>
</tbody>
</table>
Total Cost of Ownership

Business Impact of Downtime

Loss of:

- Brand equity:
  » Website accessibility
  » Customer relationship management
- Productivity of knowledge workers
- Business applications
- Critical sites, such as manufacturing or warehouses
- Data networks for regulatory reporting
- E-Commerce:
  » B2B transactions
  » Credit card processing
  » Supply chain management

What is the financial impact of downtime within your company?
Effective network management strategies help:
- Ensure that your network is performing to the architected availability
- Minimize the impact of an outage

Companies have choices:
- Do it yourself; you are responsible for everything
- Choose a Managed Services Provider:
  » Out-task some or all of the functions

“As trends such as web services, IP convergence, and on-demand computing continue to develop, the reliability of the network will become even more important. The network will support even more critical business applications, increasing the cost of downtime.”

Source: The Yankee Group, November, 2004
Why Look at Managed Network Services Providers?

- Focus on core business
- Lack of in-house expertise
- Minimize investment risk
- Improved reliability
- Frequent maintenance and upgrades
- Globalization
- Network change and complexity

“With the high cost of labor and major network transitions, enterprises that bring management of their networks in-house will spend as much as 25% more than those using Managed Services Providers.”

Source: Gartner Research, January 2003
How to Select a Managed Network Services Provider

- References/past performance
- Definition of service/SLA
- Process and methodology
- Technology expertise
- Agility/ability to accept and govern change
- Price/contract practices
- Viability/strategic and tactical partnerships

Source: Gartner Symposium, March 2004
Since 1989, Verizon has managed networks for some of the world’s most successful companies and government agencies.

- Verizon manages customer premises equipment and networks:
  - Over 3,400 customer networks
  - 149 countries
  - Over 207,000 devices
  - Nearly 8 million remote access user accounts
<table>
<thead>
<tr>
<th>Managed Network Solutions Portfolio</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WAN Management</strong></td>
<td><strong>LAN Management</strong></td>
</tr>
<tr>
<td>• Managed WAN:</td>
<td>• Managed LAN:</td>
</tr>
<tr>
<td>• Managed Ethernet</td>
<td>• Switch/Hub/Router</td>
</tr>
<tr>
<td>• IP VPN</td>
<td>• Non-Switch Devices</td>
</tr>
<tr>
<td>• Internet Dedicated - Managed</td>
<td>• Campus LAN</td>
</tr>
<tr>
<td>• Custom Services</td>
<td>• Wireless LAN*</td>
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</tbody>
</table>

**Integrated Services**

**•Professional Services**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Network Assessment</td>
<td>• Program/Project Management</td>
<td>• Application Management</td>
</tr>
<tr>
<td>• IP Readiness</td>
<td>• Performance/Capacity Planning</td>
<td>• Managed Migration</td>
</tr>
<tr>
<td>• Wireless</td>
<td>• Change Control</td>
<td>• Rapid Deployment</td>
</tr>
<tr>
<td>• Design Consulting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*2006 roadmap additions highlighted in yellow*
### Definition of Service

**Verizon’s Managed Services Continuum**

<table>
<thead>
<tr>
<th>Percent of Service Provider Management</th>
<th>Managed In-House</th>
<th>Co-Managed</th>
<th>Verizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Do It Yourself
- **Customer manages:**
  - Strategic Direction
  - Monitoring
  - Fault Isolation
  - Fault Notification
  - Fault Restoration-Logical
  - Fault Restoration-Physical
  - Maintenance-Break/Fix
  - Asset Reporting
  - Change Management-Logical
  - Change Management-Physical
  - Configuration Back-Up
  - Performance Reporting
  - Security Policy and Patching
- **Verizon manages:**
  - Nothing

#### Monitor and Notify
- **Customer manages:**
  - Strategic Direction
  - Fault Isolation
  - Fault Restoration-Logical
  - Fault Restoration-Physical
  - Change Management-Logical
  - Change Management-Physical
  - Configuration Back-Up
  - Security Policy and Patching
- **Verizon manages:**
  - Monitoring
  - Fault Notification
  - Maintenance-Break/Fix
  - Asset Reporting
  - Configuration Back-Up
  - Performance Reporting

#### Physical Mgmt.
- **Customer manages:**
  - Strategic Direction
  - Fault Restoration-Logical
  - Change Management-Logical
  - Change Management-Physical
  - Security Policy and Patching
- **Verizon manages:**
  - Monitoring
  - Fault Isolation
  - Fault Notification
  - Fault Restoration-Physical
  - Maintenance-Break/Fix
  - Asset Reporting
  - Change Management-Logical
  - Change Management-Physical
  - Configuration Back-Up
  - Performance Reporting
  - Security Patching

#### Full Mgmt.
- **Customer manages:**
  - Strategic Direction
  - Security Policy
  - Monitoring
  - Fault Isolation
  - Fault Notification
  - Fault Restoration-Logical
  - Fault Restoration-Physical
  - Maintenance-Break/Fix
  - Asset Reporting
  - Change Management-Logical
  - Change Management-Physical
  - Configuration Back-Up
  - Performance Reporting
  - Security Patching
- **Verizon manages:**
  - Monitoring
  - Fault Isolation
  - Fault Notification
  - Fault Restoration-Physical
  - Maintenance-Break/Fix
  - Asset Reporting
  - Change Management-Logical
  - Change Management-Physical
  - Configuration Back-Up
  - Performance Reporting
  - Security Patching

#### Outsourcing
- **Customer manages:**
  - Strategic Direction
  - Security Policy
  - Monitoring
  - Fault Isolation
  - Fault Notification
  - Fault Restoration-Logical
  - Fault Restoration-Physical
  - Maintenance-Break/Fix
  - Asset Reporting
  - Change Management-Logical
  - Change Management-Physical
  - Configuration Back-Up
  - Performance Reporting
  - Security Patching

### Outsourcing Options
- **Outsourcing Options**
  - Do It Yourself
  - Monitor and Notify
  - Physical Mgmt.
  - Full Mgmt.
  - Outsourcing
Definition of Service
Transport-Independent Management Service

- **Management of non-Verizon networks:**
  - Over 25,000+ non-Verizon circuits managed today
  - Over 60+ network service providers globally

- **SLA metrics available on third-party circuits**

- **Single-vendor responsibility** that enables transport and vendor diversity

- **Leverage Verizon global field force** for rapid restoration

- **Integrated NOC** for rapid isolation and remote restoration

- **Drive lower Total Cost of Ownership**

- **Test the waters** without requiring a network migration; maintain network diversity but with a single view to all your network end-points
Industry-leading repair (Full Management WAN)*:
- As low as 3.5-hour Time To Repair (U.S. Verizon circuits/maintenance)
- Third-party circuits now covered:
  - As low as 4-hour Time To Repair
- Rest of world based upon geography

IMPACT $120M+ invested:
- Fault isolation and restoration tools
- Automated rapid fault isolation¹

End-to-end fault visibility and restoration (Verizon)

LEC e-bonding and auto ticket creation

PTT in-country relationships

Operational support model:
- Globally deployed technicians
- NOC integrated team

*Terms, conditions, and restrictions apply. See your Verizon account manager for complete SLA details.

¹Subject of one or more U.S. Patents Pending.
### Meeting Service Level Agreements

**Typical Customer or Non-Carrier Test Points**

<table>
<thead>
<tr>
<th>Visibility and Control</th>
<th>Customer Site</th>
<th>LEC PoP</th>
<th>Verizon PoP</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Visibility or Control</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Customer Site**
  - Phone
  - CSU/DSU
  - Smart Jack
  - Switch
  - Router
  - Out-of-Band Router Dial Access
  - MSP/SI or DIY Test Points

- **LEC PoP**
  - M13-DS1 to DS3 Mux
  - Fiber Mux

- **Verizon PoP**
  - Fiber Mux
  - DS3-DS1 DXC
  - M13-DS1 to DS3 Mux
  - FR/Private IP/ATM Internet Switch

- **FR/ATM/Private IP/Internet Network**
# Meeting Service Level Agreements

## End-to-End Fault Visibility and Restoration

<table>
<thead>
<tr>
<th>Visibility and Control</th>
<th>Edge Visibility and LEC/Verizon E-Bonding</th>
<th>Visibility or Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Site</strong></td>
<td><strong>LEC PoP</strong></td>
<td><strong>Verizon PoP</strong></td>
</tr>
<tr>
<td>Switch</td>
<td>M13-DS1 to DS3 Mux</td>
<td></td>
</tr>
<tr>
<td>CSU/DSU</td>
<td>Fiber Mux</td>
<td></td>
</tr>
<tr>
<td>Smart Jack</td>
<td>DS3-DS1 DXC</td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td>M13-DS1 to DS3 Mux</td>
<td></td>
</tr>
<tr>
<td>Router</td>
<td>Fiber Mux</td>
<td></td>
</tr>
<tr>
<td>CSU/DSU</td>
<td>M13-DS1 to DS3 Mux</td>
<td></td>
</tr>
<tr>
<td>Switch</td>
<td>Fiber Mux</td>
<td></td>
</tr>
<tr>
<td>Router</td>
<td>DS3-DS1 DXC</td>
<td></td>
</tr>
<tr>
<td><strong>Private IP/Internet Network</strong></td>
<td>FR/Private IP/ATM Internet Switch</td>
<td></td>
</tr>
<tr>
<td>PC</td>
<td>FR/Private IP/ATM Internet Switch</td>
<td></td>
</tr>
</tbody>
</table>

- **Automated Dispatch to LEC**
- **Verizon Remote Loop-Back Points**
- **Fault Management Proactive Monitoring**
- **Verizon ITS Test Points**

**Out-of-Band Router Dial Access**

---

*Image credit: Verizon*
Automated Rapid Fault Isolation has improved performance. Average TTR reduced by an additional 15 minutes in 2005.

Total Element-Based Availability averaged for all managed elements (circuits, routers, and non-routers) on a global basis.
Process and Methodology
Awards, Certifications and Patents

- **Industry Leading Award Winning Service**
  - Frost and Sullivan Award (9/2005)
    - Customer Leadership
  - Industry Leading SLAs (3.5h TTR)*
  - Exceptional Operations
    - Avg. Jan-Jun 2005 TTR < 2.5 hours
  - Customer Recognition Awards (FAA)

- **Quality Process Leadership and Commitment**
  - ISO 9001:2000 Certification
  - ITIL (Best Practice) Assessment

- **Innovation in Network Management**
  - Rapid Fault Isolation** – Expert System
  - Network Management Systems – EMC/Smarts Whitepaper
  - Smithsonian Awards (NASDAQ, IDEA)

- **Award Winning Management Platform (IMPACT)**
  - Technology Managers Forum – Best Practices Award (10/2005)
  - InfoWorld Top innovative corporate IT solutions (11/2005)

*Full Management, US with Verizon Circuits and Maintenance
**Subject to one or more U.S. patents pending

The Frost & Sullivan Award for Customer Service Leadership is bestowed upon the company that has **demonstrated excellence in customer service** leadership within the industry. The recipient company has shown **tremendous responsiveness to customer needs** and has continually focused on long and short-term customer profitability goals. In addition, the recipient company demonstrated **flexibility in tailoring their product offerings** to suit customer businesses.
Process and Methodology

Implementation and Transition

• **Proven experience managing activation** in the past seven years:
  – Up to 1,100 sites per month
  – Over 1,500 managed networks implemented
  – 30,000 nodes designed and implemented
  – Over 130+ countries, utilizing Verizon resources

• **Speeds adoption** of new managed network infrastructure:
  – Knowledge, techniques, and business relationships
  – Can rarely be matched by customer’s staff

• **A premier team of professionals** that includes certified resources dedicated to delivering managed networks:
  – Managed Services Operations personnel hold over 375 certifications

• **Offers mature, disciplined processes**, as well as workflow automation and leading-edge account and project management technologies’
Technology Expertise

*Breadth of Technologies and Relationships*

- **Established business vendor relationships:**
  - Cisco, Nortel Networks, third-party installation and maintenance providers

- **Broad range of transport technologies:**
  - Satellite, Private Line, X.25, Frame Relay, ATM, MPLS
  - Private IP, IP VPN, IP VPN broadband, optical wavelengths

- **Broad range of existing services:**
  - WAN, LAN, security, IPv6

- **Additional services to become available in 2006 include:**
  - Wireless LAN, IP Readiness Assessments

- **Broad range of equipment vendors:**
  - Cisco, Nortel, Adtran, Motorola, Juniper, 3Com, Lucent, Visual, Check Point, NET, Alcatel, Hughes, Ericsson, Nokia, Verilink

- **Broad range of CPE devices:**
  - Routers, LAN switches, hubs, multiplexers, servers, probes, PBX, FRADs, access nodes
Higher Availability Can Translate Into Overall Savings

**TCO Proposition**

*Industry-Leading Repair and Restoration*

- **Award-winning world-class management platform:**
  - End-to-end network view; edge to core
  - Automated Rapid Fault Isolation' (Verizon network only):
    » 30-60 minute restoration time over other MSPs or DIYs can translate to additional downtime cost savings
  - LEC e-bonding in U.S. can minimize LEC hand-off time

- **Staff-support model:**
  - Single NOC engineer:
    » Empowered across transport + edge CPE
  - Globally deployed field techs and engineers

- **Leader in restoration:**
  - SLA is 3.5 hour TTR, “Repair,” not “Respond.”
  - In 2004, Verizon consistently averaged 30 minutes better than goal.
  - In 2005, Verizon is consistently averaging 60 minutes better than goal.

<table>
<thead>
<tr>
<th></th>
<th>15 min.</th>
<th>30 min.</th>
<th>45 min.</th>
<th>60 min.</th>
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<tbody>
<tr>
<td></td>
<td>$10,500</td>
<td>$21,000</td>
<td>$31,500</td>
<td>$42,000</td>
</tr>
</tbody>
</table>

* Based on $700/minute infrastructure downtime cost estimate cited in the ALINEAN, January 2004 study highlighted earlier.

1 Subject of one or more U.S. Patents Pending.
## Verizon Value

### References/ Past Performance
- 3,400+ networks in over 149 countries globally
- More than 16 years managing customer networks

### Definition of Service/SLA
- Breadth of services from monitoring to outsourcing
- Standard, custom, and dedicated NOC solutions
- Industry-leading restoration
- Multi-vendor management

### Process and Methodology
- Proven processes
- Automated rapid fault isolation, remediation process

### Technology/ Vendor Expertise
- Broad range of technologies and vendors supported
Verizon Managed Network Services

Summary

• Verizon provides maximum flexibility, helping manage all or part of your network.
• Verizon can help you to lower your TCO.
• Verizon can assist you to determine your TCO.
• Verizon Managed Services allows your company to focus its resources on its key business initiatives.
• Verizon has a proven track record of delivering exceptional network availability and restoration.
• Verizon delivers one of the most comprehensive suites of global managed solutions.
• Verizon delivers just the right fit for your business needs – today, tomorrow, and into the future.
For More Information

• To speak to a Verizon Representative about whether Verizon Managed Network Solutions are right for your business:

  – Fill out a consultation form at:

  Or

  – Call 1-800-201-1452, press 1