Network Planning Task Force (Session 3)

August 16, 2010
Upcoming Meeting Schedule

- September 20 (Security strategy)
- October 18
- November 8 (Final rate setting)
Planning

- Need another meeting. Which is best?
  - August 30, September 13 or October 4?
- Topics
  - PennNet Phone
  - Network SLA follow up
  - Wireless
  - Draft rates
  - Best practices
  - Infrastructure
  - UPS
  - Environmental controls
  - DNSSec
  - Security follow up
Agenda Session 4

- PennNet SLA
  - http://www.upenn.edu/computing/pennnet/sla/
  - Is it time to update N&T standard level of service?
The PennNet SLA is the basic service level agreement for all campus building connections.

All network trouble calls are prioritized based on the critical nature and scope of an outage.

1st Critical infrastructure problems, such as loss of a NAP, routing core device or network, Internet or Internet2 receive the highest priority

2nd Major networking problems such as loss of a building receive the next highest priority
PennNet SLA – Current Agreement

3rd Intermediate problems such as a stack of switches or wiring closet receive next level of priority.

4th Limited networking problems which are individual port problems or those that affect 10 or fewer customers are more limited in scope and therefore are lowest on the priority list.

- Those schools and centers that require increased support obtain enhanced SLA’s with N&T Operations.
  - Examples: Critical Servers or firewall network ports may require close monitoring and support.
PennNet SLA – Network Trouble Call Priority Levels

- **Priority 1 (P1) Critical Infrastructure Problem**
  - Outage to all or a significant part of PennNet
  - Considered "Network Down" condition
  - Examples – Core Router, Internet/I2, DNS/DHCP networks or servers

- **Priority 2 (P2) Major Networking Problem**
  - Outage involves 96 or more user ports
  - Either "Network Down" condition or severe degradation of network performance
  - Examples – BE Router, Multiple Wireless Controllers or Wiring Closets, DDOS Event
PennNet SLA – Network Trouble Call Priority Levels

- **Priority 3 (P3) Intermediate Networking Problem**
  - Outage involves at least 10 and not more than 96 user ports
  - Either "Network Down" or impaired networking performance in relatively small area of PennNet
  - Most of PennNet remains functional
  - Examples – Closet switch, AirPennNet & Guest building network

- **Priority 4 (P4) Limited Networking Problem**
  - Outage involves fewer than 10 users
  - Little or no impact on PennNet operations, but an outage for a small group of users
  - Examples – Individual network ports, administrative support issues e.g. IP assignments
PennNet SLA – Repair Response and Resolution Commitments

Repair Response

- Repair Response in this agreement refers to the period of time between the Network Operations Center (NOC) being notified of a network problem and the time NOC members begin work to resolve the reported problem.

- The Network Operations Center receives trouble call notifications through the ProDesk, and network events through Network Management System (NMS) Tools.
PennNet SLA – Repair Response and Resolution Commitments

- **ProDesk**
  - Trouble reports called into ProDesk will be communicated to the NOC within 30 minutes.
  - Trouble reports emailed to ProDesk will be communicated to the NOC within 4 hours.
  - ProDesk may choose to escalate an already created trouble ticket.

- **NOC monitoring equipment** will report most network troubles proactively.
On-site Visits

- Site visits may not be required for every network problem.
- The NOC will work with an on-site LSP or ITA to resolve a problem.
- Most often, site visits are required only when a network engineer cannot repair a problem remotely.
PennNet SLA – Repair Response and Resolution Commitments

- If an on-site visit by the Network Operations Center is necessary in order to troubleshoot or repair a problem, the visit will occur:
  - Within 2 Hours During Normal **NOC Business Hours**
  - Within 4 Hours During NOC On Call Hours

**Note:** On-site visits between the hours of 11pm and 6am will only be scheduled for Critical Infrastructure (P1) problems.
# Respond, Repair, Communicate Table

<table>
<thead>
<tr>
<th>SLA Commitments</th>
<th>6am to 9am</th>
<th>9am to 5pm</th>
<th>5pm to 11pm</th>
<th>11pm to 6am</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOC Hours of Operation</td>
<td>NOC Open</td>
<td>NOC Open</td>
<td>NOC 2nd Shift Open</td>
<td>NOC On call</td>
</tr>
<tr>
<td>ProDesk Hours of Operation</td>
<td>ProDesk Open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOC Response Time P1</td>
<td>Near Immediate</td>
<td>Near Immediate</td>
<td>Near Immediate</td>
<td>Within 30 Minutes</td>
</tr>
<tr>
<td>ProDesk Forward to NOC Email/Phone</td>
<td></td>
<td>Email up to 4 Hrs/Phone Immediate</td>
<td></td>
<td>Email NBD/Phone NBD/VM Page</td>
</tr>
<tr>
<td>NOC Response Time P2</td>
<td>Within 1 Hr</td>
<td>Within 1 Hr</td>
<td>Within 1 Hr</td>
<td>Within 2 Hrs</td>
</tr>
<tr>
<td>ProDesk Forward to NOC Email/Phone</td>
<td></td>
<td>Email up to 4 Hrs/Phone Immediate</td>
<td></td>
<td>Email NBD/Phone NBD/VM Page</td>
</tr>
<tr>
<td>NOC Response Time P3</td>
<td>Within 2 Hrs</td>
<td>Within 2 Hrs</td>
<td>Within 2 Hrs</td>
<td>Within 4 Hrs (6hrs after 12am)</td>
</tr>
<tr>
<td>ProDesk Forward to NOC Email/Phone</td>
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<td>Email up to 4 Hrs/Phone Immediate</td>
<td></td>
<td>Email NBD/Phone NBD/VM Page</td>
</tr>
<tr>
<td>NOC Response Time P4</td>
<td>Within 4 Hrs</td>
<td>Within 4 Hrs</td>
<td>Within 4 Hrs</td>
<td>Next Business Day</td>
</tr>
<tr>
<td>ProDesk Forward to NOC Email/Phone</td>
<td></td>
<td>Email up to 4 Hrs/Phone Immediate</td>
<td></td>
<td>Email NBD/Phone NBD/VM Page</td>
</tr>
<tr>
<td>NOC Repair Time P1</td>
<td>Work Until Resolved</td>
<td>Work Until Resolved</td>
<td>Work Until Resolved</td>
<td>Work Until Resolved</td>
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<tr>
<td>NOC Repair Time P2</td>
<td>Within 24 Hrs</td>
<td>Within 24 Hrs</td>
<td>Within 24 Hrs</td>
<td>Within 24 Hrs</td>
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<td>NOC Repair Time P3</td>
<td>By Start of NBD</td>
<td>By Start of Next Business Day (NBD)</td>
<td>By Next Business Day (NBD)</td>
<td>Next Business Day (NBD)</td>
</tr>
<tr>
<td>NOC Repair Time P4</td>
<td>By NBD</td>
<td>By Next Business Day (NBD)</td>
<td>By Next Business Day (NBD)</td>
<td>Next Business Day (NBD)</td>
</tr>
<tr>
<td>Communicate Time/Freq. P1/Target Campus</td>
<td>First Communications Campus-Wide Announcement within 2 hrs if Outage Severity Warrants.</td>
<td>Update Interval in Message ---</td>
<td>---</td>
<td>---</td>
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<tr>
<td>ProDesk Communications - Pro Alert or Email</td>
<td>Same As NOC P1</td>
<td>Same As NOC P1</td>
<td>Same As NOC P1</td>
<td>Same As NOC P1</td>
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<tr>
<td>Communicate Time/Freq. P2/Target Area LSP</td>
<td>First Communications IT Support Staff or LSP within 4 hrs if Outage Severity Warrants</td>
<td>Update Interval in Message ---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>ProDesk Communications - Phone or Email</td>
<td>At Start of Business Day</td>
<td>At Start of Business Day</td>
<td>At Start of Business Day</td>
<td>At Start of Business Day</td>
</tr>
<tr>
<td>Communicate Time/Freq. P3/Target Ticket Red</td>
<td>First Communications Ticket Requestor within 4 hrs. Update by end of Shift (in ticket)</td>
<td>Update By Start of Next Business Day</td>
<td>Update By Start of Next Business Day</td>
<td>Update By Start of Next Business Day</td>
</tr>
<tr>
<td>ProDesk Communications - Phone or Email</td>
<td>At Start of Business Day</td>
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<td>At Start of Business Day</td>
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<tr>
<td>Communicate Time/Freq. P4/Target Ticket Req</td>
<td>First Communications Ticket Requestor within 4 hrs. Update by end of Shift (ins ticket)</td>
<td>Update By Start of Next Business Day</td>
<td>Update By Start of Next Business Day</td>
<td>Update By Start of Next Business Day</td>
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<tr>
<td>ProDesk Communications - Phone or Email</td>
<td>At End of Business Day</td>
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<td>At End of Business Day</td>
<td>At End of Business Day</td>
</tr>
</tbody>
</table>

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**Chart Color Codes**
- ISC NOC Manned Hours
- ProDesk Manned Hours
- ProDesk Un-Manned Hours
- ISC NOC On call Hours
## PennNet SLA – Network MAC’s and Wiring Installations

<table>
<thead>
<tr>
<th>Service</th>
<th>Time to Complete Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Activation</td>
<td>90% will be complete within 24 hours</td>
</tr>
<tr>
<td>Standard Activation</td>
<td>Within 3 business days</td>
</tr>
<tr>
<td>Standard Wiring Installation</td>
<td>Within 2 weeks</td>
</tr>
<tr>
<td>Disconnect Requests</td>
<td>Within 2 weeks</td>
</tr>
</tbody>
</table>

These timeframes do not apply to wiring installations and MACs related to projects. Premium install and MAC services can be performed during overtime at an additional rate. Installation and MAC services performed outside of working hours are best effort.
PennNet SLA Discussion

- Is the Basic PennNet SLA meeting your needs?