PENNNET: SERVICE LEVEL AGREEMENT (SLA)

GENERAL

INTRODUCTION

This is an SLA between the PennNet service and all clients of this service.

PennNet is the University’s enterprise data network core. The PennNet core includes all routers in buildings, distributed Network Aggregation Points (NAP), ScienceDMZ, and the Campus border to the outside world. It is the backbone for wired and wireless network access services for faculty, staff and students in all campus buildings and residence halls. PennNet provides connectivity to all university services and applications and it allows remote access to sites on the Internet and Internet2. An “at-a-glance” diagram showing which part of the network is covered by this SLA is available at: https://www.isc.upenn.edu/sites/default/files/pennnet_sla_at-a-glance.pdf.

The PennNet service also offers advanced network solutions for research groups and others at Penn who require high performance networking. ISC will work with clients to gather requirements, develop design options, provide cost estimates, and implement approved designs.

This SLA will be reviewed with clients on a yearly basis.

REPORTING AND REVIEW

Reports are made available, on a subscription basis, from PennNet Reportal. Two types of reports Internet Traffic and Router Links are described below. Custom reporting is available upon request.

Internet Traffic Report: This report shows absolute traffic volume over time, in bits, to and from Penn’s Internet providers, (currently Level 3 and Cogent). It gives an indication of traffic patterns to the commodity Internet. The reports runs weekly at 7 AM on Monday and includes the previous 7 days. The samples are 5 minutes.

Router Links Report: This report shows bandwidth utilization as a percentage, for uplinks from each building to a core router. The traffic is from the point of view of the building router, and the link speed is shown on each graph. Customers only see the buildings that are linked with their specific PennNet Reportal accounts. This graph is useful for seeing long-term trends in usage, identifying busy times, and noticing unusual patterns (spikes or troughs). The report runs weekly at 6 AM on Monday and includes the previous 7 days. The samples are 5 minutes.

Other Reporting

Incident Handling and Service Requests: Incident handling and service request reporting is under development. We expect to have these available by the first yearly review of this SLA.

SERVICE SUPPORT

SERVICE HOURS

The PennNet network operates 24x7. Engineers who maintain this service are on site 6AM to 5PM Monday through Friday and also provide afterhours support to ECC staff. Afterhours support can be reached by calling Client Care, (215) 898-1000.

Maintenance and Outage Periods:

Standing Maintenance Window
ISC Technology Services’ standing maintenance window for upgrades and maintenance to the network is Tuesday mornings from 5:00am to 7:00am. The actual start and duration of this period may vary due to the complexity of a particular need. Other maintenance windows may be used depending on the scheduling needs presented by an LSP. These maintenance windows may not be globally announced if they are small in scale or considered local to a school or department.

Notification for Scheduled Maintenance

Scheduled maintenance will be announced to the campus community at least 3 business days in advance for all maintenance that affect an entire building, and at least 5 business days in advance for maintenance that affect the PennNet routing core.

Notification for Emergency Maintenance

Emergency maintenance that require near immediate downtime (i.e. same day) will be scheduled so the maintenance occurs at or near the end of the University’s business day. Campus-wide communications will be sent.

Emergency Equipment Upgrades and Restarts

Emergency equipment operating system upgrades and restarts may be required due to a vendor’s technical support recommendation, particularly after new networking features are deployed. Campus-wide communications will be sent in the event an emergency upgrade or restart is scheduled.

SERVICES TARGETS

No more than 9 hours of downtime for PennNet Core per year, which includes any failure resulting in downed hardware or degraded service.

Network trouble calls are prioritized based on the critical nature of an incident. PennNet incident handling targets are listed in the table below. Service Targets for P3 Intermediate and P4 Limited priority levels are described in the PennNet Ethernet Ports SLA.

<table>
<thead>
<tr>
<th>Priority Level</th>
<th>ISC Client Care</th>
<th>ISC Client Care Off Hours</th>
<th>Resolution Time</th>
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</thead>
<tbody>
<tr>
<td>P1 Critical Infrastructure</td>
<td>Near Immediate</td>
<td>Within 30 Minutes</td>
<td>Work Until Resolved</td>
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<tr>
<td>• Outage to all or significant part of PennNet Core or Border routers</td>
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<tr>
<td>• Considered “Network Down” condition</td>
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<td>P2 Major</td>
<td>Within 1 Hour</td>
<td>Within 2 Hours</td>
<td>Within 24 Hours</td>
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<tr>
<td>• Outage involves one or more Ethernet switch stacks.</td>
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<tr>
<td>• Building “Network Down” condition or severe degradation of network performance</td>
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SUPPORT & SERVICE REQUESTS

Support intake for incident handling and service requests is ISC Client Care. ISC’s standard processes for incident management and service request fulfillment are applicable to this service. Types of issues reported for PennNet include problems routing traffic between buildings on campus, slow data transfers, or Internet connectivity issues.

CONTACT POINTS & ESCALATION

For any issues related to the service and/or the service levels, end users should contact their local school or center support provider. To escalate an issue, Local Support Providers should contact Client Care – help@isc.upenn.edu.

If an issue needs to be escalated, Client Care will contact the service owner and manager:
SERVICE DELIVERY

AVAILABILITY
The PennNet core is expected to be available 99.9%, which is no more than 9 hours of downtime per year. Includes any failure resulting in downed hardware or degraded service.

CAPACITY ASSUMPTIONS/TRANSACTION RESPONSE TIMES
The PennNet routing core supports all university traffic. The core capacity exceeds demand by 150%. The core hardware is evaluated and upgrade on a 6 year cycle to stay ahead of bandwidth demands and introduce new features. Average round trip delay across campus is <1ms.

ISC maintains 40Gbps of Internet service and 100Gbps of Internet2 services. Internet service is split between two service providers with a total committed rate of 10Gbps, with burst capability to 40Gbps. Internet and Internet2 access is located in two diverse locations on campus.

CONTINUITY & SECURITY
The PennNet routing and ISP services are essential for the operation of the university. Redundancies have been designed into the network to maintain connectivity during partial network outages. Proactive monitoring and alerting is used to notify support staff. All issues are worked continually until resolved with scheduled campus email notifications and updates. TS IP Engineering partners with Information Security to provide vulnerability scans. Security patching is announced and handled on an as needed basis.

RATES
This service is funded through the Central Service Fee.

EMBEDDED LINKS
Central Service Fee Description: https://www.isc.upenn.edu/direct-billed-central-service-fee
ISC Service Desk Incidents & Requests: https://upenn.box.com/v/ISCServDeskIncidentRequest
PennNet Reportal: https://pnreportal.net.isc.upenn.edu/ (PennKey required)