CERNET TNE Program Update

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CANS2016
Houston, Texas
Agenda

• TNE in China Update
• CERNET TNE Services
• The Fault Reporting and Escalation System
• Q&A
Challenges

• Services
  • Communication
  • Fault reporting and escalation

• Global Access
  • Internet (China – Int’l, GFWed)
  • NREN (not access through commercial resource)
Progress update since June

• Transition

• Team
  Customer Services, CERNET NOC, CERNET2 NOC, Sales (HQ and Branches)

• Fault Report and Escalation (TTS)

• Incidents report
  ➢ 2016.8.19
    - Incident: CERNET – LA 10G Link (BEI/CT – LAX/CTUSANP13 Sea Cable) is interrupted due to the service work on the land section in TPE. The interruption started at 08:04, and went on and off several times, the service resumed at 16:13.
    - Impact: All users’ traffic going on this link is affected, including DKU, NYU.
    - Solution: All the traffic were re-routed to another CERNET – US link.
    - Result: The user can access the resources in the US, but the latency is slightly longer because one of the two commercial sea cable was also broken at the same time. An Incident Report was sent to DKU upon request.
  ➢ 2016.9.30
    - Incident: CNGI – 6IX 10G Link was interrupted at 9:47. It was because the fiber cable in Tsingtao broken. The service resumed at 12:28.
    - Impact: The traffic on this link was affected.
    - Solution: All the traffic on this link were automatically re-routed to CERNET’s other fiber cables.
    - Result: The customers were given notice but their business not affected.

• Internet Access
  • Working on solutions to not only provide necessary Internet access, but also comply with rules and regulations.
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Overview

• 1979 projects, in which 930 were approved by the Ministry of Education of China, 1049 by provincial governments.

• 349 China’s universities involved one or multiple projects.

• 3 Types
  ✓ Campus Site (DKU@Kunshan, NYU@Shanghai)
  ✓ Campus-in-Campus
  ✓ Office-only

• CERNET TNE Program serves 6 projects
Why CERNET?

• CERNET is the largest NREN and connects to research and educational networks worldwide, widely supports educators, researchers, faculties, and students.

• Customers can access CERNET2, the largest IPv6 network in the world, which connects to huge educational, research, and commercial resources.

• CERNET has dedicated routes to the US (Internet2, 10G), Europe (GEANT, 10G) and Asia Pacific Region (APAN, 10G). The connections are built with resilience consideration to ensure the stability of the connectivity. Currently these routes are not congested and the quality is very good.

• CERNET is built with 100G backbone and has 38 regional POPs, which serves 2000+ universities and institutions in China.

• VIP Services – Direct link, fault reporting and escalation system.
Services

• Link to CERNET / CERNET2 and beyond
• VPN Tunnel
• VIP Services
  ✓ Direct Link to US (no GFW)
  ✓ Network monitoring
  ✓ Support team provides 7x24 services
  ✓ Network Health Report (monthly)
  ✓ Post-sales services
  ✓ Monthly tele-conference for status update
• Fault Reporting and Escalation System
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• TNE in China Update
• CERNET TNE Services
• The Fault Reporting and Escalation System
• Q&A
Comply with international and industrial standards

- Comply with ISO20000 Information Technology Service Management standard
- Refer to ITIL (Information Technology Infrastructure Library) service management framework
- Based on existing CERNET in-house procedures

Applied ITIL Functions And Processes

ITIL functions:

- **Service Desk**

ITIL processes:

- **Service Strategy**
  - Strategy mgmt. for IT services
  - Service portfolio mgmt.
  - Financial mgmt. for IT services
  - Demand mgmt.
  - Business relationship mgmt.

- **Service Design**
  - Design coordination
  - Service catalogue mgmt.
  - **Service level mgmt.**
    - Availability mgmt.
    - Capacity mgmt.
    - IT service continuity mgmt.
    - Information security mgmt.
    - Supplier mgmt.

- **Service Transition**
  - Transition planning and support
  - Change mgmt.
  - Service asset and configuration mgmt.
  - Release and deployment mgmt.
  - Service validation and testing
  - Change evaluation
  - Knowledge mgmt.

- **Service Operation**
  - Event mgmt.
  - Incident mgmt.
  - Request fulfillment
  - Problem mgmt.
  - Access mgmt.

- **Continual Service Improvement**
  - The seven-step improvement process
Service Desk

• The service desk is the single point of contact (SPOC) for users when there is a service disruption
• Deals with all user issues
• Facilitate the restoration of normal operational service
• Coordinates actions across the IT organization to meet user requirements
• Objectives:
  - Logging and categorizing incidents
  - First line investigation and diagnosis
  - Escalation
  - Communication with users and IT staff
  - Closing calls/tickets
  - Customer satisfaction survey
Levels Of Technical Support

CERNET Technical Support

Tier 0: Self-service
Tier 1: Service Desk
Tier 2: Technical support
Tier 3: Advanced technical support

Customer <-> Supplier

Tier 4
Incident Management Process

Event mgmt.
Web interface
Phone call
Email

Incident identification
To request fulfillment (if this is a service request) or portfolio management (if this is a change proposal)

Is this really an incident?
Yes
No

Incident logging
Incident categorization
Incident prioritization

Major incident procedure
Yes
No

Initial diagnosis

Functional escalation?
Yes
No

Management escalation?
Yes
No

Hierarchic escalation?
Yes
No

Investigation and diagnosis

Resolution identified?
Yes
No

Resolution and recovery

Incident closure
End

Major incident?
Yes
No

Escalation needed?
Yes
No

ServiceDesk.cernet.com
400-818-5550
ServiceDesk@cernet.com
<table>
<thead>
<tr>
<th>Severity</th>
<th>Impact</th>
<th>Priority code</th>
<th>Description</th>
<th>TTR (Day time)</th>
<th>TTR (Night time)</th>
<th>MTTR (Day time)</th>
<th>MTTR (Night time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (Unable to use)</td>
<td>1 High (Several schools) 1 Medium (Several campuses of one school) 2 Low (One campus/building)</td>
<td>1</td>
<td>Critical</td>
<td>30 min</td>
<td>60 min</td>
<td>2 hours</td>
<td>4 hours</td>
</tr>
<tr>
<td>Medium (Restricted use)</td>
<td>2 High (Unable to use) 3 Medium (Several campuses of one school) 4 Low (One campus/building)</td>
<td>2</td>
<td>High</td>
<td>2 hours</td>
<td>4 hours</td>
<td>4 hours</td>
<td>8 hours</td>
</tr>
<tr>
<td>Low (Not big deal)</td>
<td>3 High (Unable to use) 4 Medium (Several campuses of one school) 4 Low (One campus/building)</td>
<td>3</td>
<td>Medium</td>
<td>12 hours</td>
<td>12 hours</td>
<td>8 hours</td>
<td>24 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Low</td>
<td>24 hours</td>
<td>36 hours</td>
<td>48 hours</td>
<td>48 hours</td>
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<tr>
<td></td>
<td></td>
<td>5</td>
<td>Planning</td>
<td>Planned</td>
<td>Planned</td>
<td>Planned</td>
<td>Planned</td>
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</table>

**Definition of Severity**

- **High (Unable to use)**
  - Serious incident that leads to the complete disruption to the WAN/Internet link. Example would be link down, impossible to use.

- **Medium (Restricted use)**
  - WAN/Internet link usable with some restrictions. Performance degraded, but still available. Example would be packet loss rate > 5%, the link on and off.

- **Low (Not big deal)**
  - WAN/Internet link is still usable, performance slightly degraded. Workaround is available. Example would be packet loss rate <5%, or a backup link is been used.

**Notes**

- **TTR**: Time To Response
- **MTTR**: Mean Time To Resolve
- **Day time**: 8:00 – 20:00
- **Night time**: 20:00 – 8:00
- **Beijing Time**, GMT+8:00
## Escalation

<table>
<thead>
<tr>
<th>Level</th>
<th>Position</th>
<th>Contact person</th>
<th>Email</th>
<th>Phone</th>
</tr>
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<tbody>
<tr>
<td>Level 1</td>
<td>NOC Duty Manager PM</td>
<td>(NOC Duty List) (CERNET Branches)</td>
<td>- (CERNET Branches)</td>
<td>- (CERNET Branches)</td>
</tr>
<tr>
<td>Level 2</td>
<td>NOC Manager TNE Program Coordinator Sales Manager</td>
<td>Man Da William Wan Huang Shuai</td>
<td><a href="mailto:mand@cernet.com">mand@cernet.com</a> <a href="mailto:wanl@cernet.com">wanl@cernet.com</a> <a href="mailto:huangss@cernet.com">huangss@cernet.com</a></td>
<td>- +86-10-6260-3350 +86-10-6260-3479</td>
</tr>
<tr>
<td>Level 3</td>
<td>Operation Director Sales Account Dir.</td>
<td>Suogang Li Jianrui Shang</td>
<td><a href="mailto:lisg@cernet.com">lisg@cernet.com</a> <a href="mailto:shangjr@cernet.com">shangjr@cernet.com</a></td>
<td>- +86-10-6260-3496</td>
</tr>
<tr>
<td>Level 4</td>
<td>Corp. VP Corp. VP CERNET Leader</td>
<td>Xiaodong Fu Guanmin Fan Jennifer An</td>
<td><a href="mailto:fuxd@cernet.com">fuxd@cernet.com</a> <a href="mailto:fangm@cernet.com">fangm@cernet.com</a> <a href="mailto:anjie@cernet.edu.cn">anjie@cernet.edu.cn</a></td>
<td>- - -</td>
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</table>

### Escalation Time:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Level1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
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</thead>
<tbody>
<tr>
<td>P1</td>
<td>Immediate</td>
<td>1 hour</td>
<td>2 hours</td>
<td>24 hours</td>
</tr>
<tr>
<td>P2</td>
<td>1 hour</td>
<td>2 hours</td>
<td>3 hours</td>
<td>24 hours</td>
</tr>
<tr>
<td>P3</td>
<td>2 hours</td>
<td>4 hours</td>
<td>8 hours</td>
<td>48 hours</td>
</tr>
<tr>
<td>P4</td>
<td>4 hours</td>
<td>8 hours</td>
<td>24 hours</td>
<td>72 hours</td>
</tr>
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</table>
The Trouble Ticketing System

✓ 2016.09.01: Evaluation
✓ 2016.10.01: Deployment and internal testing
  • 2016.11.01: Training (Product and process, user’s manual)
  • 2017.01.01: In production
Important Information

- 7x24 Customer Hotline: 400-818-5550 (within China), +86-10-6277-5550
- Customer Service Email: serv@cernet.com
- TTS Portal: http://tts.cernet.com:3000

- My contact: wanl@cernet.com, +86-10-6260-3350
Thank You!