Network trouble ticket standardisation - Status and outlook

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EGEE'09, 2009-09-22, Barcelona

Outline

- **History**
- **Work done**
- **Around normalisation**
  - Goal & benefits

History of related work in EGEE

- **Goal: Cope with network in project level operations**
  - Network is the underlying layer supporting project's services
    - Scheduled downtimes, cut in transit networks etc. are impacting
    - Link with Grid operations
      - *Network downtime → Grid downtime*

- **Tickets exchange between NRENs and Grid operations**
  - Network TT are the only operational information widely available from network providers
  - Network TT centralised within a dedicated support unit
    - Ease workflow N*1 vs N*N and avoid disclosure issues
    - Provide information to sites about not directly connected network providers
      - *Layer 3 cloud model, not end to end links*

Why centralised?

- **Was not a federated approach possible?**
  - Why not having each site being responsible for its connectivity and pushing network information to the Grid world?

- **Centralising was considered more achievable**
  - Sites efficient for the last mile, not for what happens between
  - e2e service, but cloud network
    - Fibre cut in GN2…
    - Several sites might be affected
  - A federated approach might not scale to 300 sites without central coordination
  - Sites unwilling to do that for each project!
  - If automated reliable approach is possible try it
  - Grid support was initially more centralised

Work done

- **Initiated within the EGEE Network Operation Centre**
  - Now receiving network tickets from 19 major NRENs
    - Painfully through plain text e-mails
  - Parse, filter, homogenise and store
  - Analyse (sort, render, share...)
- **Roadmap**
  - Concept prototyped and validated during EGEE-I
  - Implementation done since beginning of EGEE-II
    - Important workflow, need automated analysis
    - Currently 30k tickets and 120k e-mails in the db
      - *2.5k monthly emails carrying 800 tickets*
- **But automatic and useful usage is failing**
  - Difficult analysis & disclosure issue
  - Strong emphasis on normalisation since EGEE-III

Sample confusing information

- **Datetime**
  - 07/08/09 09:08

AM, PM? TZ, mm-dd, dd-mm...

- **Problem description**
  - Link #4AS45-27 is down
  - See attached failure report (failure.pdf.zip)
  - interface GigabitEthernet5/1 ethernet-csmacd
  - For more information see #C0LT-42 or #GL0BAL-CR0SSING-21
- **Trouble location**
  - Main core router, link to the city, main link, primary path

- **Local information meaningless at project level**
- **Real service impact is not computed**
  - Assessing resilience capabilities should be network provider business

Normalisation, a panacea?

- **Network trouble tickets are targeting a local community**
  - We did not intend to break that!
  - Only requesting more details to enable project level understanding
    - Details on how information is local: Timezone…

- **Normalisation**
  1. Of exchange
     - Data model, xml, interfaces
     - E-mail could stay fine if better formatted
  2. Of content
     - **Focus on service status**, not on infrastructure status
     - Technical level is network provider business, is this useful for customer?

Benefits from normalisation

- **Mutualise effort around TTS**
  - Currently X NRENs, X different TTS…
  - Homogenise operational information systems, or at least interfaces
- **Possibility for a centralised archive/dashboard of TT**
  - Problem between Spain and Italy: Find relevant tickets in 5 seconds wherever, whatever it is
  - Easy global reference and information access #NREN-TTid
  - Avoid fully meshed exchange of ticket N*N → N*1
- **Enable automated tickets management 24*7*365**
  - Filtering, broadcast, impact computation...
- **Ease project's overall view on network status**
  - Find relevant tickets instead of being spammed
    - Seamless integration of network operations within project operations

Minimum subset of information

- **Vital subset of information required in TT**
  - Ticket ID
  - Start and end datetime (in a standardised way with TZ detail)
  - Status (Open, close, etc.)
  - **IMPACT**
    - Kind: none, disconnection, performance
    - And location (institution, etc.)
- **Cherry on the cake**
  - Kind (Scheduled, unscheduled)
  - Trouble location (related to a known topology database)
  - Priority
  - Short problem description
  - (Long problem description)
- **Not so much!**

In mind

- **Languages are not a key issue**
  - A lot of fields (date, location...) are quite language independent
  - Most of the language dependent fields are often constrained
    - Not fixed ones - History, details etc. – are not useful for customers
- **Technical work on TTS is huge effort**
  - Complex proprietary systems
  - Often home made improvements tailored for NOC's desire
- **Limited TT disclosure within project seems ok**
  - Not raw forwarding, extracting only vital information
- **Automatic impact computation is really tricky**

Conclusion (1/2)

- **Lesson from the ENOC**
  - What is currently acquired in network TT is not enough

- **Issues on format, exchange and meaning**
  - Technical solutions are now here
  - Service status is really missing within TT
    - Are NRENs able to provide it?

Conclusion (2/2)

- **Requirements clearly wider than EGEE**
  - Lot of project using/delivering services across several network providers could really benefit from TT normalisation

- **Technical background was really refined**
  - Now clear manpower issue in implementation within NRENs
    - Currently no clear benefit for NRENs to standardise output
    - **What could/should be next step?**

Questions?