eGee

Network trouble ticket standardization for exchange
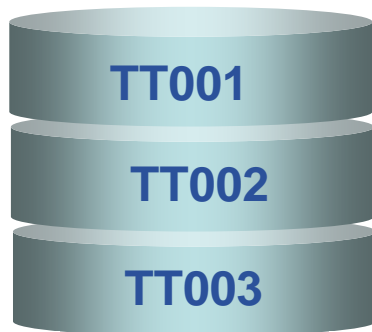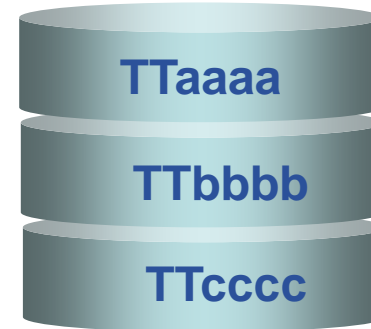
Dimitris Zisiadis (GRNET-CERTH)

dimitris@uth.gr
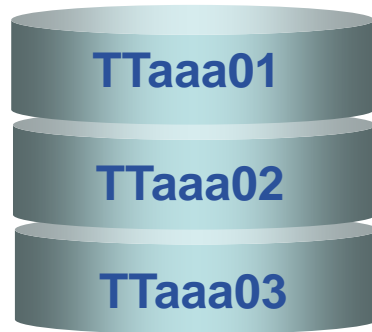
EGEE'07 Conference/TNLC meeting – 1st October 2007

www.eu-egee.org

Information Society and Media

Enabling Grids for E-sciencE

- ❑ **Introduction**
- ❑ **Data Model v1.4**
- ❑ **Open Issues**
- ❑ **Implementation**
- ❑ **Conclusions**

eGee

NREN-1

TTaaa01

TTaaa02

TTaaa03

NREN-2

TTaaaa

TTbbbb

TTcccc

NREN-3

TT001

TT002

TT003

➢**mail TTs to enoc**

➢**parser & converter**

egee

NREN3-TT16

NREN1-TT23

NREN2-TT4

Central DB
XML TT

NREN1
TT25

NREN3
TT17

XML

NREN2
TT5

NREN1
TT24

ENOC

Roadmap

TT Data Model
Definition

TT xml
Beta Application

GRNET
Implementation

ENOC
Unified
XML scheme
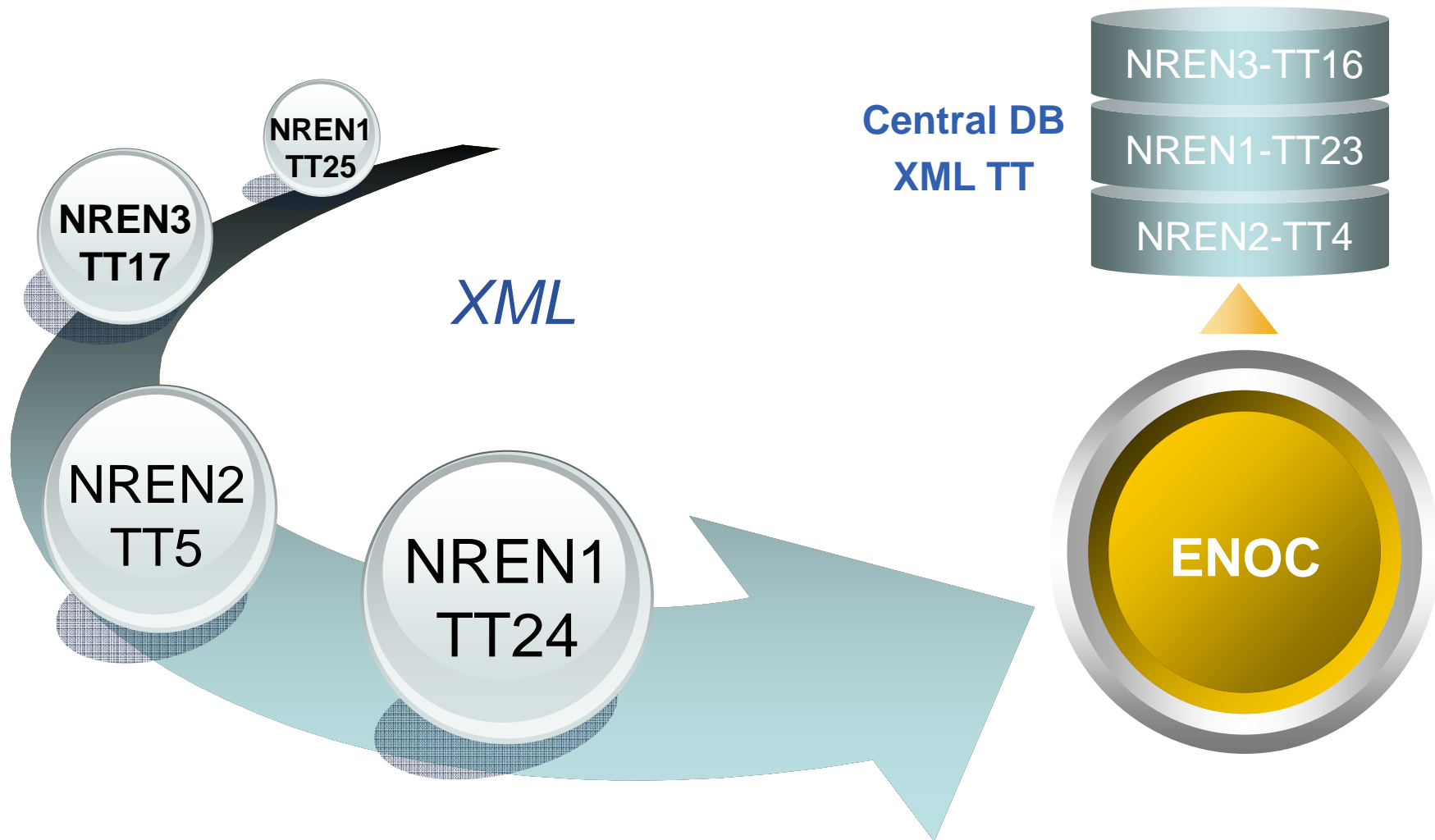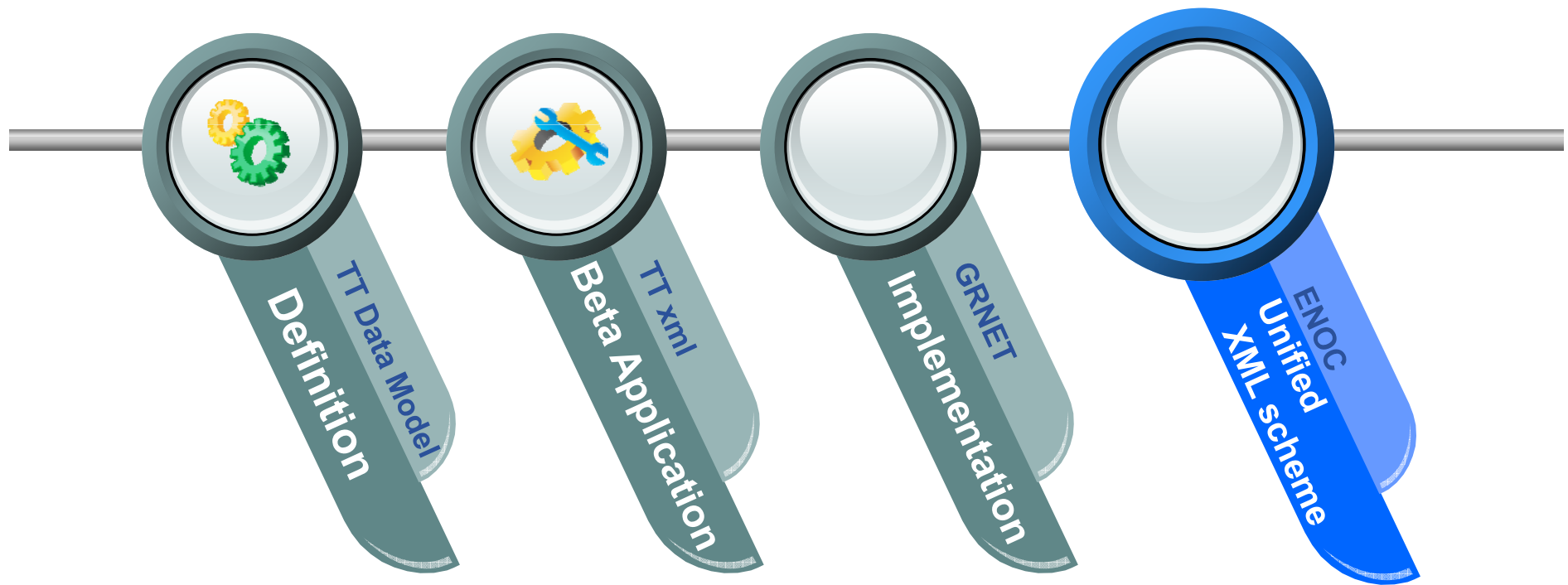
FIELD NAME	DESCRIPTION	TYPE	VALID FORMAT	MANDATORY

❑**FIELD NAME:** the adopted name for the specific field

❑**DESCRIPTION:** a small description of this field

❑**TYPE: MULTIPLE / DEFINED / LIST / FREE**

❑**VALID FORMAT:** accepted format of the field

❑**MANDATORY: YES/NO,** indicates whether field is mandatory

Enabling Grids for E-sciencE

TYPE & FORMAT

❑**MULTIPLE:** single value among multiple fixed values

❑**LIST:** many values among fixed values

❑**DEFINED:** value computed from other fields in the data model

❑**FREE:** the value can be freely chosen

❑**STRING:** defined by the user of the model

❑**PREDEFINED STRING:** the different values are predefined in the data model

❑**DATETIME:** MUST include the Time Zone used

FIELD NAME	DESCRIPTION	TYPE	FORMAT	MANDATORY
PARTNER_ID	The unique ID of the TT source partner	MULTIPLE	STRING	yes
ORIGINAL_ID	The trouble ticket ID that was assigned by the party	FREE	STRING	yes
TT_ID	The unique ID of the TT	DEFINED	STRING	/
TT_OPEN_DATETIME	The datetime that the TT was opened	MULTIPLE	DATETIME	yes
TT_CLOSE_DATETIME	The datetime that the TT was closed	MULTIPLE	DATETIME	yes
START_DATETIME	The datetime that the incident/ maintenance started	MULTIPLE	DATETIME	yes

Enabling Grids for E-sciencE

FIELD NAME	DESCRIPTION	TYPE	FORMAT	MANDATORY
DETECT_DATETIME	The datetime that the incident was detected	MULTIPLE	DATETIME	no
REPORT_DATETIME	The datetime that the incident was reported	MULTIPLE	DATETIME	no
END_DATETIME	The datetime that the incident/maintenance ended	MULTIPLE	DATETIME	yes
TT_LASTUPDATE_TIME	The last datetime that the TT was updated	MULTIPLE	DATETIME	yes
TIME_WINDOW_START	Window start in which planned maintenance may occur	MULTIPLE	DATETIME	yes if TYPE is "scheduled"
TIME_WINDOW_END	Window end in which planned maintenance may occur	MULTIPLE	DATETIME	yes if TYPE is "scheduled"

FIELD NAME	DESCRIPTION	TYPE	FORMAT	MANDATORY
WORK_PLAN_ START_DATETIME	Work planned (expected) start time in case of maintenance	MULTIPLE	DATETIME	no
WORK_PLAN_ END_DATETIME	Work planned (expected) end time in case of maintenance	MULTIPLE	DATETIME	no
TT_TITLE	The title of the TT	DEFINED	STRING	/
TT_ SHORT_DESCRIPTION	The short description of the TT	MULTIPLE	PREDEFINED STRING	yes
TT_ LONG_ DESCRIPTION	The detailed description of the problem/incident/ maintenance reported in the TT	FREE	STRING	no

Enabling Grids for E-sciencE

FIELD NAME	DESCRIPTION	TYPE	FORMAT	MANDATORY
TYPE	The type of the trouble	MULTIPLE	PREDEFINED STRING	yes
TT_TYPE	The type of the TT	MULTIPLE	PREDEFINED STRING	yes
TT_IMPACT_ ASSESSMENT	Impact of the incident/ maintenance	MULTIPLE	PREDEFINED STRING	yes
RELATED_EXTERNAL_ TICKETS	The NOC entity related to the incident	LIST	STRING	no

FIELD NAME	DESCRIPTION	TYPE	FORMAT	MANDATORY
LOCATION	Location (Pop site, city, etc.) of the incident/maintenance	MULTIPLE	STRING	yes
NETWORK_NODE	The network node related to the incident	LIST	STRING	no
NETWORK_LINK_CIRCUIT	Name of The network line related to the incident	LIST	STRING	no
END_LINE_LOCATION_A	A-end of the link	MULTIPLE	STRING	no
END_LINE_LOCATION_B	B-end of the link	MULTIPLE	STRING	no
OPEN_ENGINEER	The engineer that opened the ticket	MULTIPLE	STRING	no

FIELD NAME	DESCRIPTION	TYPE	FORMAT	MANDATORY
CONTACT_ENGINEERS	The engineers responsible for the incident settlement	LIST	STRING	no
CLOSE_ENGINEER	The engineer that closed the ticket	MULTIPLE	STRING	no
TT_PRIORITY	Trouble ticket priority	MULTIPLE	PREDEFINED STRING	no
TT_STATUS	Trouble ticket status	MULTIPLE	PREDEFINED STRING	yes
ADDITIONAL_DATA	Additional information	FREE	STRING	no

FIELD NAME	DESCRIPTION	TYPE	FORMAT	MANDATORY
RELATED_ACTIVITY	TT IDs of related incidents. Reference only TT in the same domain with only their ORIGINAL_IDs	MULTIPLE	STRING	no
HISTORY	Actions/events log	FREE	STRING	yes
HASH	Encrypted message hash	DEFINED	STRING	/
TT_SOURCE	Source of the ticket	MULTIPLE	STRING	no
AFECTED_COMMUNITY	Affected community	FREE	STRING	no
AFFECTED_SERVICE	Affected service	MULTIPLE	STRING	no

PREDEFINED VALUES (GRNET)

FIELD NAME	VALUES
TT_PRIORITY	Low, Medium, High
TT_SHORT_DESCRIPTION	GRNET Client Upgrade, Core Link, IPv6, Client upstream link, QoS, Router, Node
TT_STATUS	Open, Pending, Closed, Inactive

PREDEFINED VALUES

FIELD NAME	VALUES
TT_TYPE	Operational, Informational, Administrative, Test
TYPE	Scheduled, Unscheduled
TT_SHORT_DESCRIPTION	Core line fault, Access line fault, Degraded service, Router hardware fault, Router software fault, Routing problem, Undefined problem, Network congestion, Client upgrade, Other
TT_IMPACT_ASSESSMENT	No impact, Reduced redundancy, Minor performance impact, Severe performance impact, No connectivity, On backup, At risk, Unknown
TT_STATUS	Opened, Updated, Solved, Closed, Inactive, Opened/Closed, Cancelled, Superseded, Reopened
TT_SOURCE	Users, Monitoring, Other NOC

DEFINITIONS: TT_STATUS

VALUE	MEANING
Solved	the incident is solved but the team prefers to monitor for check.
Cancelled	the ticket has been opened twice, one of the both tickets is cancelled and a relation is done between them via RELATED_ACTIVITY.
Inactive	the ticket is under the responsibility of an external domain and is no more under the domain control.
Superseded	the ticket has been superseded by another one (case of a bigger problem having raised many tickets and being merged in one single incident). The RELATED_ACTIVITY field should include the master ticket reference.
Opened/closed	for tickets that are opened only to report an incident that is already solved.

DEFINITIONS: TT_TYPE

VALUE	MEANING
Operational	for network incident & maintenance only.
Informational	Information about the trouble ticket system or the exchange interface (maintenance, upgrade).
Administrative	Information about the access to the TTS (credentials) or the exchange interface.
Test	to test the trouble ticket system or the exchange interface, etc.

Comments

❑**TT_ID**: "PARTNER_ID"_"ORIGINAL_ID".

❑**RELATED_EXTERNAL_TICKETS**: list of TT_ID's

❑**HISTORY** must NOT be empty when TT_STATUS is different from "OPENED" or "OPENED/CLOSED".

❑**TT_TITLE** is not mandatory because built from other fields

❑All **FREE STRING** should have as an attribute the language used.
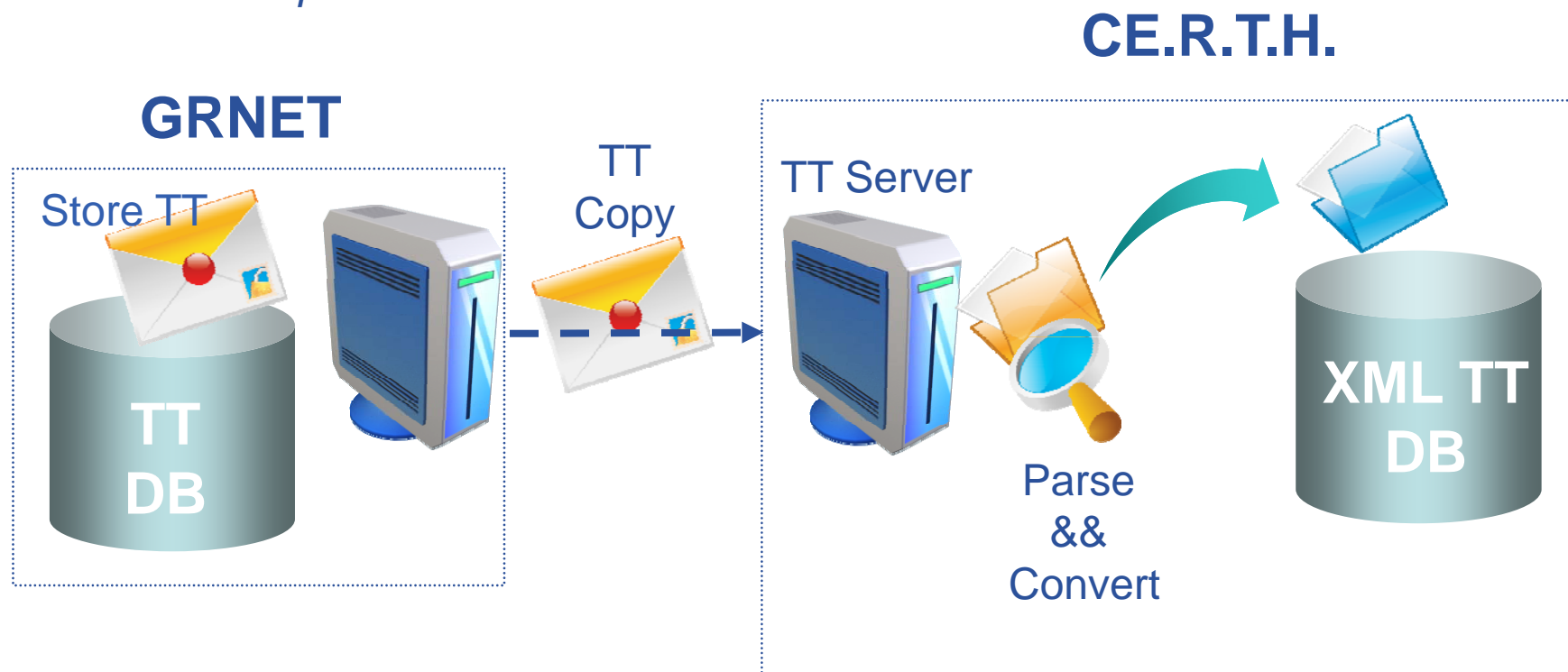
egee

Enabling Grids for E-sciencE

❑ The period delimited by WORK_PLAN_START_DATETIME and WORK_PLAN_END_DATETIME must be included in the period delimited by TIME_WINDOW_START and TIME_WINDOW_END --- why?? (Dimitris)

❑ Do we need END_LOCATION_A/B ?? (Guillaume, Dimitris)

❑ TT_TYPE (Guillaume)

 - INFORMATIONAL: for NOC using their TTS as a way to reach many network engineers

 - Everything related to the TTS (unavailability, upgrade, credentials) or the NOC staff (change of phone number, new members etc.) go into ADMINISTRATIVE

❑ TT_STATUS (Guillaume)

- Inactive: for tickets opened twice (2 NOC phone operators receiving a call for the same problem at the same moment and opening a ticket for the same event). We cannot close the second ticket as this might wrongly bring the thought problem is terminated. The RELATED_ACTIVITY field must carry ORIGINAL_ID regarding this outage, the current ticket will no longer be updated

- Superseded: The current ticket will automatically be closed when another ticket is closed as the WHOLE solving of the outage is not under the responsibility of the current domain. Allow for users receiving tickets from several involved domains to follow only 'root' tickets instead of waiting the cascading solving to reach current domain.

- Cancelled: Ticket opened by error (no real outage behind)

- Opened/closed: a better name for it (stillborn, reporting)

EGEE

Enabling Grids for E-sciencE

❑ TT_ID: use '-' instead of '_' (Guillaume)

❑ ORIGINAL_ID: should be numeric (Guillaume)

❑ HISTORY: holds all actions and events regarding the incident (Dimitris)
TIME_WINDOW_START/END vs WORK_PLAN_DATETIME_START/END:
do we need them both? (Dimitris)

❑ keep START/END_DATETIME and TIME_WINDOW_START/END
(Guillaume, Dimitris)

❑ Hash: Instead of compulsory yes/no we could say that as soon as a hash
is found into a message then all messages from the partner must have it,
else they will be discarded. This could allow a smooth transition. (Guillaume)

❑ TT_PRIORITY: use NORMAL (Guillaume)
note: we already have MEDIUM

Enabling Grids for E-sciencE

❑ *email parser for GRNET TTs with XML conversion*

❑ *GRNET Helpdesk*

CE.R.T.H.

GRNET

Store TT

TT Copy

TT Server

TT DB

Parse && Convert

XML TT DB

Enabling Grids for E-sciencE

❑*Finalize Data Model (Syntax, Semantics)*

❑*GRNET : Test & Accept TT conversion scheme*

❑*Implementation for other NRENs*

Thank you!