



# E2ECU Support for the LHC OPN

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Connect. Communicate. Collaborate

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# E2ECU Role



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- E2ECU DOES :-
  - Monitor End-to-End circuit
  - Send alerts about outages & maintenance
  - Manage information flow between domains

OPN End-Points	E2ECU Monitors
Tier 0 and Tier 1	YES
Tier 1 and Tier 1	YES
Tier 1 and Tier 2	NO

- E2ECU DOES NOT :-
  - Trouble-shoot Point-To-Point (intra-domain) circuits
  - Monitor or Troubleshoot
    - Layer 3 routers at ends
    - NREN or GEANT2-owned routers or equipment
    - Servers or applications



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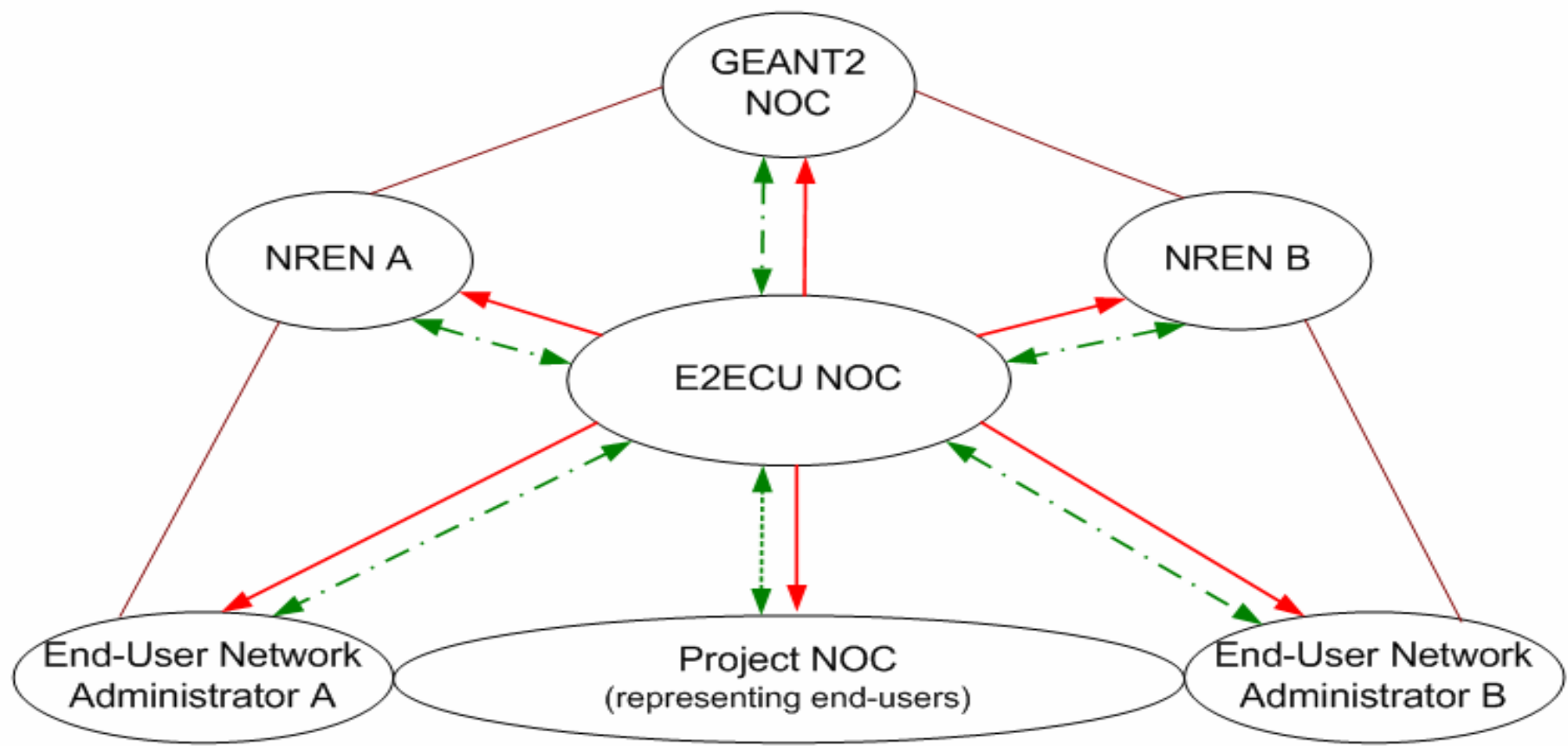
# Service Description

- These entities can send tickets to E2ECU :-
  - Campus Network Administrators
  - NREN NOCs
  - GEANT2 NOC
- From the ENOC, the E2ECU expects only general queries, not tickets.
- E2ECU receives fault alerts from :-
  - End-to-End Monitoring System
  - NOCs by email
- Tickets sent out to parties involved in a particular project, except e.g. research scientists themselves.

←----->  
QUERIES ONLY

←----->  
TICKETS &  
QUERIES

←----->  
Ticket update  
notifications

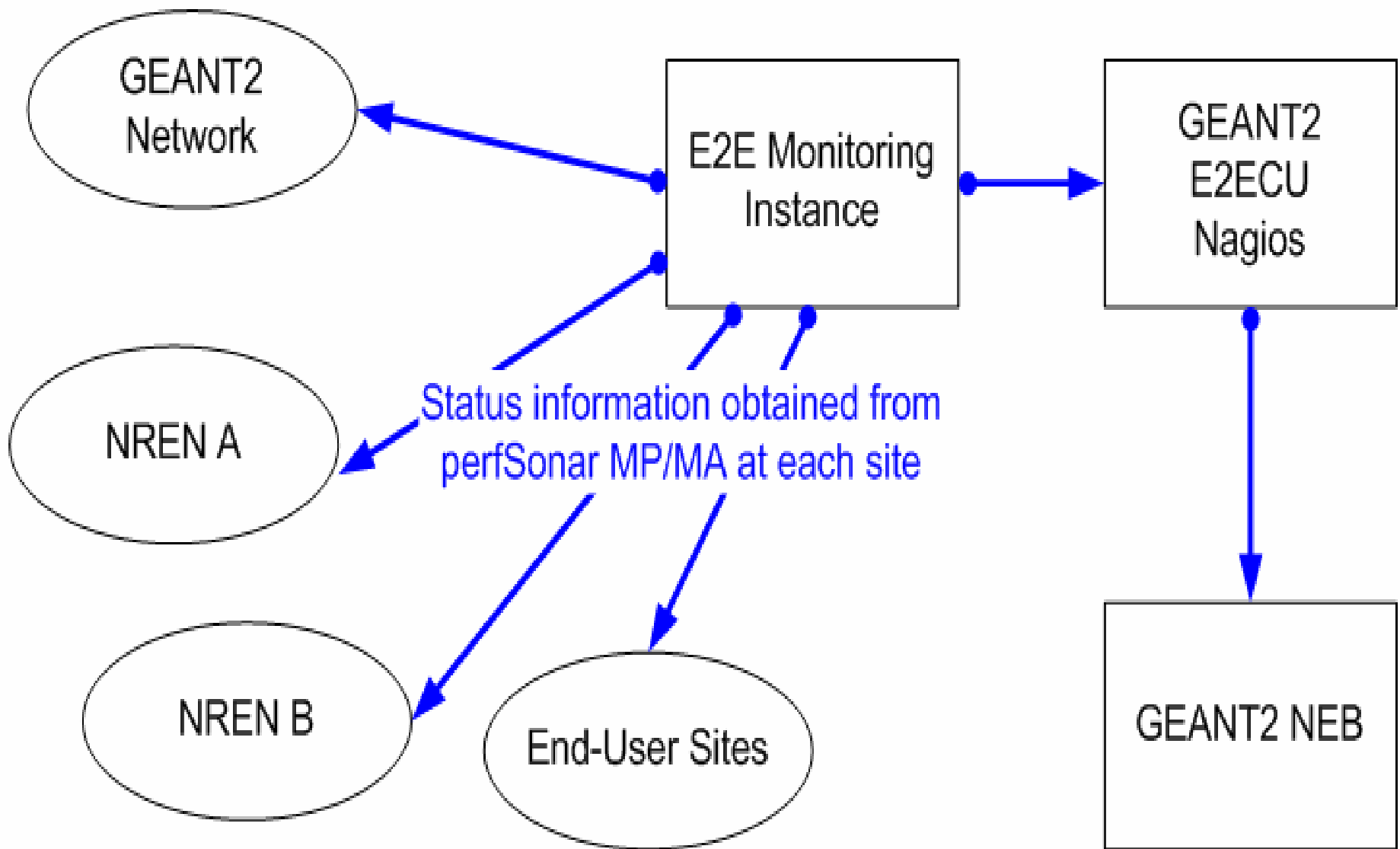




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# Monitoring

- Each domain installs & maintains perfSONAR MP or MA
- See [perfSONAR Wiki](#) for more info
- UP / DOWN only at first
- E2ECU Monitoring Instance queries MPs / MAs
- SNMP Traps sent to Nagios
- E2ECU watches Nagios for faults
- E2ECU opens ticket & contacts responsible party
  
- NREN can also send email / telephone E2ECU with fault
- Right now only LHC OPN & IGTMD, later DEISA





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# Procedures

- Various scenarios possible :-
- E2ECU notices new fault on E2E segment
- NREN notices fault on inter-domain link (IDL) between NREN and GEANT2
- NREN NOC notices fault within NREN's network
- NREN or End-User notices fault on inter-domain link between NREN and End-User
- NRENs / Campus Network Admins / GEANT2 all notify E2ECU of planned maintenance 10(?) days in advance.



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# Escalation Procedure

- NREN NOC can escalate to DANTE if they need E2ECU to respond quicker
- E2ECU can escalate to DANTE if they need an NREN NOC to respond quicker

# E2ECU Achievements



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- Unit operational :-
  - [e2ecu@noc.geant2.net](mailto:e2ecu@noc.geant2.net)
- Ticket system set up (PAC, similar to GEANT2)
- Staffed by 0.5 Full-Time Equivalent (FTEs)
  - Monday-Friday: 06:00 – 22:00 CET
  - Saturday-Sunday: 09:00 – 18:00 CET
- Database
  - temporary Excel file
  - E2E Link IDs
  - Contact info for Responsible NOCs for each segment



# E2ECU Plans for the Future

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- Complete Procedures
- Wiki / Website: Procedures, Topology Diagrams, Contacts
- Complete Database / Knowledge Base
- Guiding similar Co-ordination Unit in U.S. for transatlantic links
- Setting up procedures with same for 24x7 support?
- Any other suggestions?



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# Issues to resolve

- Procedure Approval
- Set-up form collation / approval / distribution – liaising with JRA3
- Best home / format for E2ECU Database?
- Software Development Management for Monitoring System