



Connect. Communicate. Collaborate

GEANT2 Monitoring Services

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Connect. Communicate. Collaborate

- PERT – Performance Enhancement Response Team
- MDM – Multi-Domain Monitoring
- E2EMon – End-to-End Monitoring System
- E2ECU – End-to-End Co-ordination Unit

Slides contributed by various @DANTE

Why PERT?



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- To enable end-users to enjoy optimal performance for networked applications by:
 - Providing them with services:
 - Advice on tuning end-system hardware and operating systems
 - Help in identifying and fixing backbone bottlenecks
 - Promoting awareness of realistic performance expectations.
- All education and research users are eligible for PERT assistance.
 - But NRENs and pan-European research projects are given preferential treatment when demand is high.

GN2 PERT Organisation



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- 9 NRENs contribute to the PERT virtual team
CARnet, CESNET, FCCN, GARR, Hungarnet, PSNC,
RedIRIS, RENATER and SWITCH
- NRENs provide ‘Duty Case Managers’ on a rotating weekly basis :-
- 2 working hours response time
- PERT Ticket System – developed by PSNC
- PERT Knowledge Base – TWiki maintained by SWITCH
 - Case results, advice & information on network performance.

The Future of the PERT



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- The PERT will become decentralized in Sep 2008
- A permanently-staffed DANTE PERT will be at the root of a federated structure
- All organizations running RENs will be encouraged to set up their own PERT
- The smaller-scale PERTs will be able to request assistance from well-resourced and experienced PERTs.

GEANT2



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perfSONAR

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perfSONAR Objectives



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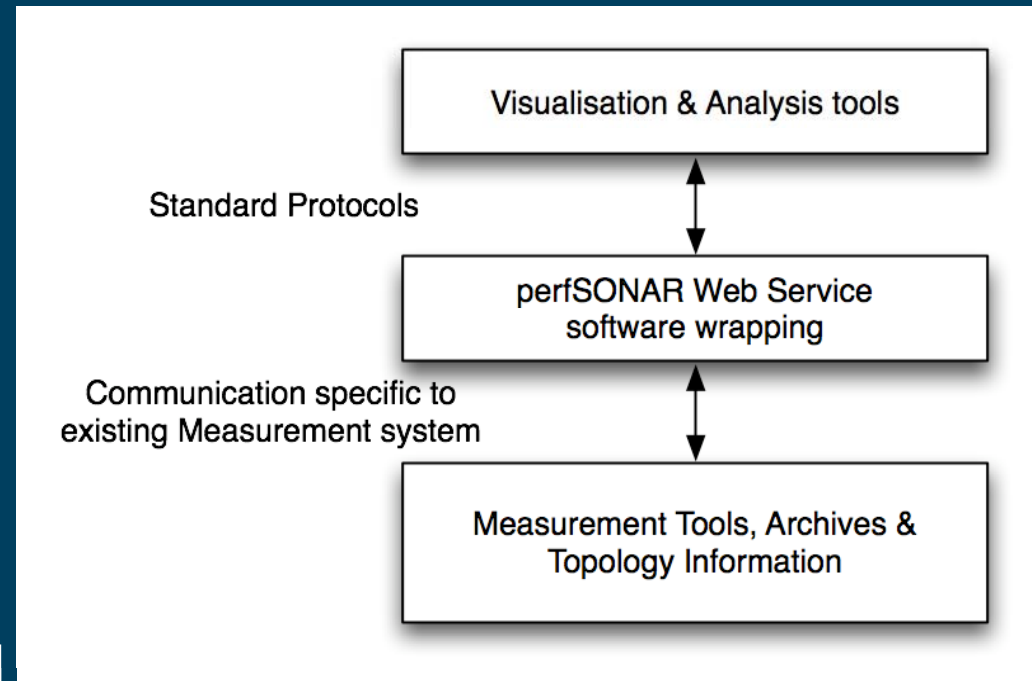
- Improve analysis of network behaviour and network related problems
- Provide access to, amongst others :-
 - network information provided by multiple domains
 - network measurement capabilities of various domains
- Collaborate with the many existing tools and archives widely deployed and in development
- Make stored measurement data and measurement capabilities accessible to the users of other domains
- Respect data privacy needs of domains
- Use standard protocols (OGF NMWG) using Web Services (XML/SOAP) technology

perfSONAR Architecture



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- perfSONAR decouples components in measurement system
- Required for effective & scalable multi-domain monitoring
- perfSONAR software tailored to fit on top of existing tools.
- Conversion between standardised protocols and tool-specific communication



Multi-Domain Monitoring Service



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GÉANT2 offers a new service

- Multi-Domain Monitoring Service (MDM)
- Support for users of perfSONAR software
 - Dedicated Service Desk
 - Agreements with Software Development groups
- Currently targeted users
 - Network Operation Centers (NOCs)
 - Performance Enhancement Response Team (PERT)
 - LHC OPN
 - End to End Co-ordination Unit (E2ECU)



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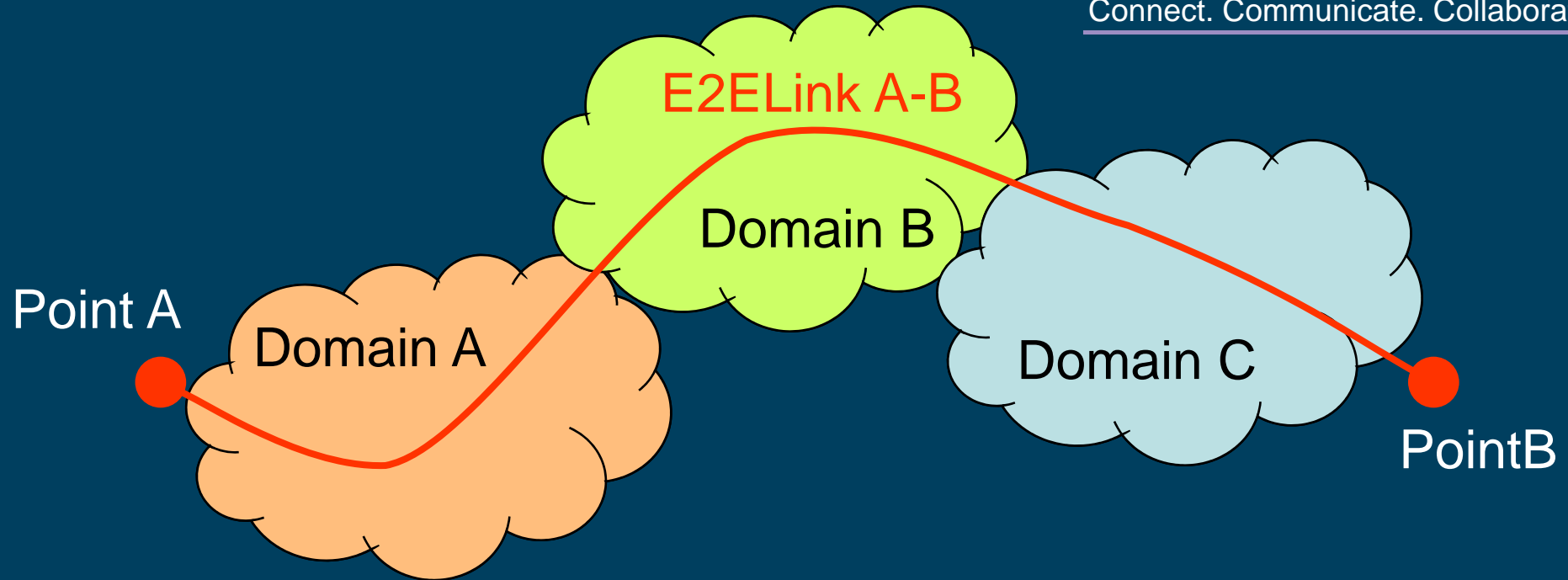
End-to-End Network Monitoring



E2E Link Monitoring Goal

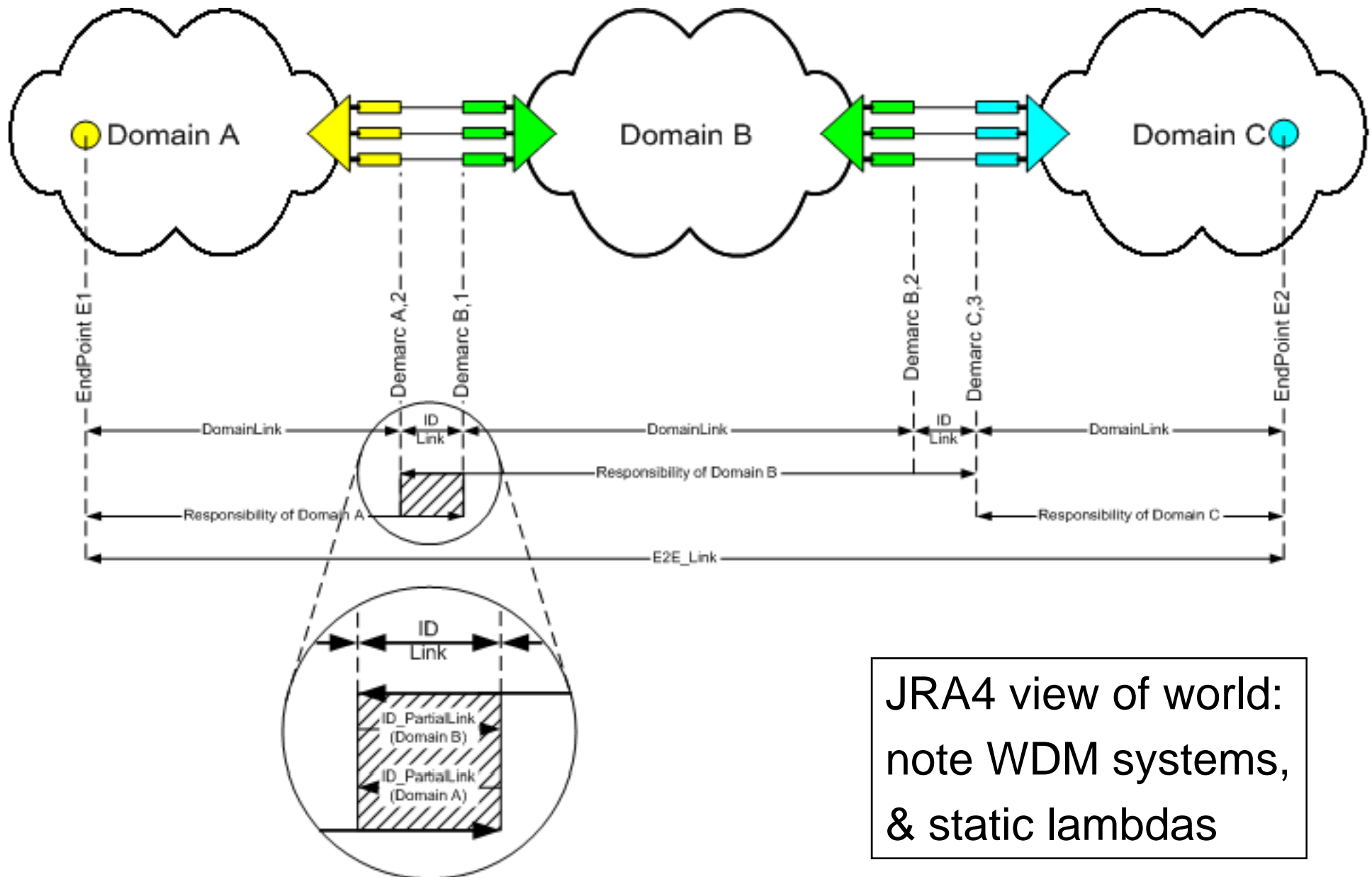


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Goal: (near) real-time monitoring (link status) of constituent DomainLinks (and links between domains) and whole end-to-end Link A-B.

The following applies to the GÉANT2+ service and the cross border fibres.

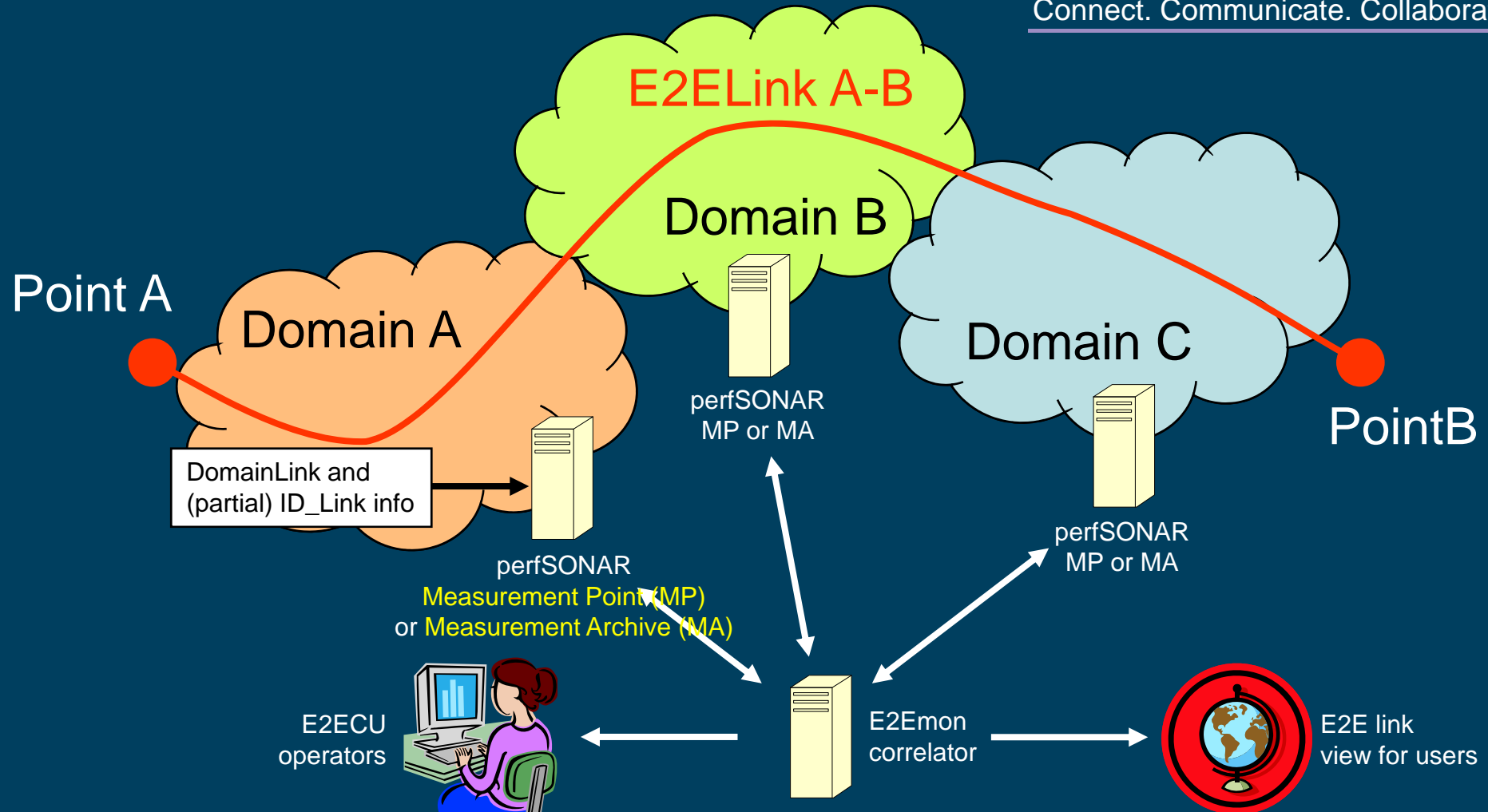


JRA4 view of world:
note WDM systems,
& static lambdas

E2EMon Approach



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End-to-End Monitoring (i)



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- Each domain installs own/3rd party software to capture up/down status of their links from network hardware
- This status info sent to PerfSONAR MP or MA
- Measurement Point (MP)
 - Lightweight web service – XML file
 - Collecting network status info [UP / DOWN only]
- Measurement Archive (MA)
 - Mainly historical archive for network status info
 - Also same functions as MP but SQL Database
- MP / MA checks info and reformats into XML for collection by E2EMon

End-to-End Monitoring (ii)



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- E2E Monitoring System
 - Queries PerfSONAR MPs & MAs
 - Concatenates DLs & IDLs to form E2E Links
 - Sends SNMP traps to Nagios plug-ins
- Nagios sends status info to “dashboard” = Network Event Broker (NEB) – watched by E2ECU
- E2ECU opens ticket & contacts NRENs & ENOC
- Right now only LHC OPN & IGTMD, soon other projects
- DANTE has ongoing co-op with E2EMon developers
- DANTE helping create E2ECU & ENOC Ops Handbooks

More Information



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- Thank you for listening!
- perfSONAR web pages - www.perfsonar.net
- perfSONAR Wiki - www.wiki.perfsonar.net
- perfSONAR UI and deployment monitoring
<http://perfsonar.acad.bg>
- GÉANT2 MDM Service
<http://www.geant2.net/server/show/nav.1801>
- For more information please contact the following people :-
 - PERT / PIP – tooby.rodwell@dante.org.uk
 - MDM – loukik.kudarimoti@dante.org.uk
 - E2EMon / E2ECU – emma.apted@dante.org.uk



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End-to-End Circuits



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