

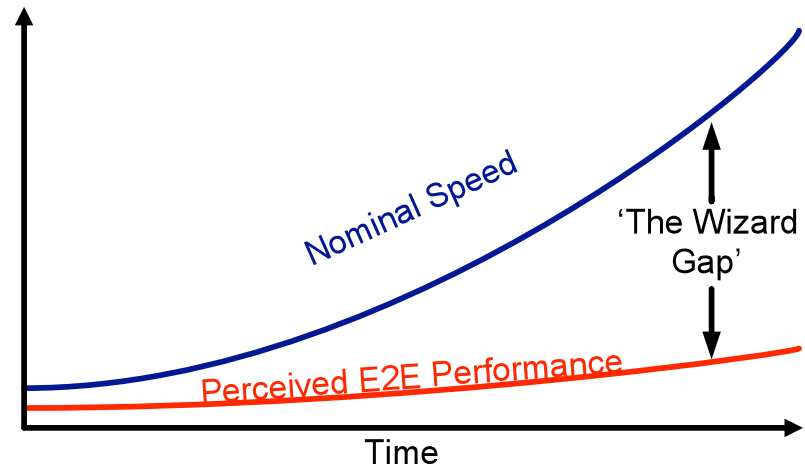
EduPERT—Helping European Researchers Bridge the Wizard Gap

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Why is e2e performance hard?



- Multiple layers of systems with complex interactions
 - Applications, OS, disks/memory/network adapters, networks including middleboxes such as firewalls/rate shapers etc.
- Multiple network domains
 - Campus LAN, regional/national/international backbones
- Defensive support organisations
 - “finger-pointing loops”
 - (my part of the network works fine, so it must be X!)

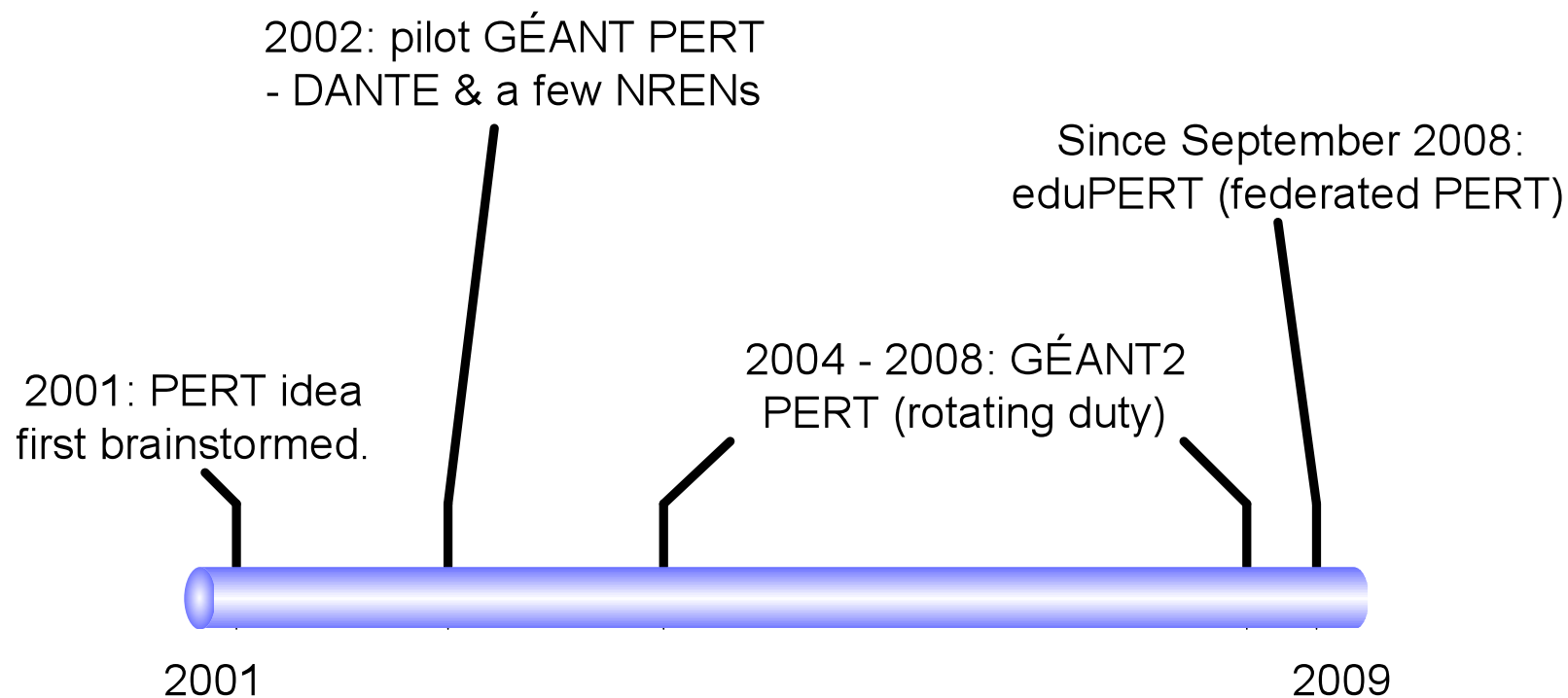


What is a PERT?



- PERT = “Performance Enhancement/Response Team
- “like a CERT, but for performance problems”
- Assists users of research networks with performance issues by
 - Understanding users' goals/requirements
 - Taking responsibility for performance issues (“ownership”)
 - Applying holistic (cross-layer) thinking
 - Suggesting or performing diagnostics
 - Coordinating with NOCs/PERTs/... in different domains
 - Identifying bottlenecks and suggesting improvements

Brief history of the (edu)PERT



What is eduPERT?



- The new *federated* model for PERT work in the GÉANT community:
- Distributed (NREN/campus/large project) PERTs—close to users
- Supported by central services/elements:
 - Common policy (GN2 DS3.12.4)
 - Registry and accreditation (edupert.geant.net)
 - ~Yearly PERT Training workshops
 - Meetings for information exchange
 - PERT Knowledge Base—kb.pert.geant.net
 - Central reporting through GÉANT Monthly Service Reports

GN2 PERT experience feedback



- Contacted in advance, PERT can sanity-check user's performance expectations and give them general hints as to what traps to avoid
- In complex failure scenarios, PERT can coordinate measurements across multiple domains, and sometimes uncover hidden network problems that concern many other users (FNAL-DESY)

Challenges for eduPERT



- Keep up momentum without a strong core
 - The GN2 “centralised PERT” with rotating duty and a common PTS (PERT Ticket System) was a strong catalyst for cooperation and information exchange

Ideas for addressing this:

- Continue successful training events
- Have open eduPERT meetings for inter-PERT networking
 - *But where?*
- Improve information flow through better reporting
- Preserve collective wisdom through PERT KB development
- Continue expanding the scope
 - Convince European NRENs that running a PERT is worthwhile
 - Other regions, large projects, campus networks...

Upcoming Challenges for PERTs



- Moving to a parallel (multicore/manycore/cluster) world
- High-performance applications moving to clouds (e.g. Amazon S3/EC2)
- Virtualisation
- VPNs
- Wireless/mobile applications
- Sensors in remote places (seismometers, weather stations etc.)

Why you should have a PERT (version for managers)



- Potential to create positive “Moments of Truth” for your constituency
- Differentiates your service from commodity offerings
- Interesting work helps retain senior network engineers
- Synergies across your organisation (network/systems/applications)

Why you should have a PERT (version for engineers)



- You'll help your network's users do exciting things
- You'll learn new skills that are widely applicable
- It's rewarding if you don't mind occasional direct contact with users
- It's technically challenging and generally fun!

How to cooperate



- Learn from each other, exchange experiences and do joined workshops
- Subscribe to: pert-discuss@geant.net
Archive (userid/password needed):
<http://mail.geant.net/mailman/private/pert-discuss/>
- If considering running a PERT, register yourself so that it appears on the PERT list: <http://edupert.geant.net/>
Send e-mail to Simon Leinen: simon.leinen@switch.ch
- Check out the PERT Knowledge Base: <http://kb.pert.geant.net/>