Program: Building high-performing infrastructures for research Workshop

Dates: 24-26 September
Place: ASTRON, Dwingeloo, NL

Time	Topic	Speaker/Instructor
Monday, 24 September		
1000-1030	Coffee and Welcome	
1030-1100	Workshop welcome: "*Radio astronomy as a driver for high performing research infrastructure and people*"	Carole Jackson, ASTRON Science Director and Director General
1100-1200	**Network infrastructure and architectures** • Science DMZ and Research Data Zone idea • Campus to NREN networks • Campus and research users • Data transfer nodes (DTNs) as a concept	Pieter de Boer
1200-1245	Lunch	
1245-1400	Tour of ASTRON and JIVE	
1400-1545	**Security topics** • Securing a Science DMZ/RDZ • Practices for intrusion detection system topics • Discussion	Michael Sinatra
1545-1600	Break	
1600-1700	**Data transfer servers** • Data workflow characteristics • Server architecture - what is important to look at and how to test • Host tuning for research data needs	Ron Trompert
1700-1715	Day 1 wrap-up discussion	
1800-2000	Dinner event: de Bospub	
Tuesday, 25 September		
0900-1000	**Storage systems and configurations** • Ceph • FTS3 - data transfer scheduler and manager	Ron Trompert
1000-1045	**Data transfer tools (GridFTP and what's on the horizon)** • TCP issues • WLCG and moving on from GridFTP • Test results and moving up to 100G • Xrootd test results	Richard Hughes-Jones
1045-1100	Break	
1100-1200	**Troubleshooting** • Methods for testing and analysis (diagnosing some of the common issues) • Reference DTN testing with GEANT boxes - application-level testing	Richard Hughes-Jones
1200-1230	**Introduction to perfSONAR** Why perfSONAR? Intro and motivation, global architecture , the different components, the different installation options (ISO, bundles, OS) (30 min)	Szymon Trocha
1230-1330	Lunch	
1330-1400	**perfSONAR toolkit architecture, installation and basic usage** • Hardware (specs) and advanced setup (dual interfaces, VLAN, small nodes, VM) (15 min) • Configuration and filling in administrative information. Where to find other pS instances? LS registration pitfalls and tips (15 min)	Szymon Trocha

1400-1500	**Hands-on activity**: Presentation on the Hands on training lab setup, VM access (ssh+web), basic GUI usage, administrative setup, configuring a measurement (60 min)	Szymon Trocha
1500-1515	Break	
1515-1645	**Mesh measurements** • What is a measurement mesh, when is it useful, how to define it, the available schemes, how to choose an appropriate mesh, … (30 min) • **Hands-on activity**: Setting up mesh-config-agent with the lab central server and reviewing logs (mesh with iperf3 and traceroute measurements) (60 min)	Szymon Trocha Antoine Delvaux (hands-on assistance)
Wednesday, 26 September		
0900-0945	**More Mesh measurements** • What is MaDDash and what can it do for you? Different meshes, different measurement types, participating to multiple meshes. (15 min) • A look at the lab's mesh measurements, effect of adding your own measurements through pS GUI, adding a second mesh to the mesh-config-agent (latency and rtt) (30 min)	Antoine Delvaux
0945-1015	**perfSONAR use cases** • JISC (15 min) • PSNC (15 min)	Tim Chown (remote), Szymon Trocha (PSNC)
1015-1030	Break	
1030-1200	**Measurement Archive introduction** • Schemes (distributed, central), access management, maintenance. (Introduction and pointers for those who wants to know more) (15 min) • pScheduler introduction • Present the architecture and how to use it from the CLI. (30 min) **Mesh measurements** • **Hands-on activity:** A look at the lab's mesh measurements, troubleshooting the mesh, log review, running pscheduler from the CLI, playing with the client-server architecture of pscheduler,… (45 min)	Antoine Delvaux Szymon Trocha (hands-on assistance)
1200-1300	Lunch & Dwingeloo Telescope tour	
1300-1445	**Securing a perfSONAR installation** • Firewall and other security related recommendations (Auto-updates, …) (20 min) • pscheduler CLI refresher (10 min) • **Hands-on activity**: Firewall setup (on the host but also in front of the MP). Inspect various faulty cases with broken communication between servers (MP, MA and meshconfig). (75 min)	Antoine Delvaux Szymon Trocha (hands-on assistance)
1445-1500	Break	
1500-1545	**Troubleshooting performance issues** • Review, Q&A: common mesh configuration pitfalls, what are the important metrics, what to look at, … (30 min) • Pointers and advices to troubleshooting network performance issues (eduPERT, FasterData ESnet, …)	Antoine Delvaux Szymon Trocha Richard Hughes-Jones (?)
1545-1630	• GÉANT: pS development roadmap, how pS is used in other networks • Community feedback and discussion	Antoine Delvaux, Mary Hester