« networking the networkers »

3rd TF-NOC meeting
28-29 June 2011
Zurich, Switzerland

Table of contents

Minutes

1.   Introduction, roll call, minutes, and actions

The third TF-NOC meeting was held on 28-29 June 2011, hosted by SWITCH in Zurich, Switzerland. The task force meeting was held back-to-back with DANTE's Access Port Managers (APM) group meeting. TF-NOC was attended by 27 people and other 3 people followed the meeting via Video Conference (the list of attendees is enclosed). The TERENA secretary was Peter Szegedi.

The meeting agenda was approved without changes. Due to technical problems Paul Noomen (SURFnet) was unable to present his slides. He agreed to give the talk next time. Presentations are available at:
http://www.terena.org/activities/tf-noc/meeting3/programme.html

The welcome speech was given by Willi Huber, Head of Network (SWITCH). He showed the SWITCHlambda network; 2500 km of dark fibres following railways and motorways through many tunnels even up to the "Top of Europe". The optical network now has more than 10 years of success and became the enabler for other value-added services. Willi mentioned the SWITCH CERT, the domain registration service, Eduroam and the middleware activities, SWITCHcast and video/web conferencing services among many other end-user and commercial consulting services of SWITCH. Slides are available at
http://www.terena.org/activities/tf-noc/meeting3/slides/110628-welcome.pdf

The previous meeting minutes were approved with no comments. An update to the action list (see the Wiki at https://confluence.terena.org/display/NOC/Action+points) was given as follows:

- Action 12 – **Done.** Gareth Eason (HEAnet) gave an inspiring presentation about the use of standards at NOCs.
- Action 16 – **Pending.** It was agreed to give one more try and contact ESnet. Otherwise, TF-NOC should be proactive and make a proposal that can then be distributed to all for comments.
- Action 18 – **Open.** Stefan Liström (NORDUnet) is working on that.
- Action 19 – **Done.** Label dictionary is frozen as is (see the Wiki), may be updated as we start collecting documents.
- Action 20 – **Done.** Survey structure and questions have been discussed.
- Action 21 – **Done.** Survey structure and questions have been discussed.

2.   Strategy towards emerging NOCs

Stefan Liström (NORDUnet) briefly summarised that at the TERENA Networking Conference 2011 in Prague individual TF-NOC participants were approached by country representatives from emerging regions. The TF-NOC session was attended by Bonny Khunga, Zambia Research and Education Network (ZAMREN). He expressed their interest in TF-NOC as they have started with network operations recently. Talgat Nurlybayev, Kazakhstan Research and Education Networking Association (KAZRENA) and Zarlyk Jumabek Uulu, The Central Asian Research and Education Network (CAREN) had a side meeting with Stefan Liström (NORDUnet), Gareth Eason (HEAnet) and other TERENA Secretariat representatives about their interest in TERENA activities and particularly in TF-NOC. They were interested in network operation practices and software tools, NOC organisations and internal structures, as well as services (and service operations) to be provided on top of the networks. CERT and eduroam were mentioned as examples.

Stefan concluded that TF-NOC should need a strategy on how to deal with the increasing level of interest coming from emerging NOCs from different regions such as Central Asia, Africa or Latin America. This conclusion was seconded by other TF-NOC participants. Paul Noomen (SURFnet) mentioned that University of Groningen has contacts with Zambia and they also came to SURFnet to learn about operations. Mian Usman (DANTE) said that DANTE provides only connectivity between CAREN and the GÉANT network. Thomas Schmid (DFN) noted that they have informal channels to Kenya and DFN provides some internship to them. Pieter Hanssens (BELNET) said that they have some relationships to Congo and Ernst Heiri (SWITCH) added that SWITCH is e.g., hosting some domains for Argentina.

It was generally felt that these informal channels and relationships should be supported even on higher levels. However, it is not the primary aim of TF-NOC to support emerging countries. TF-NOC was created to share information, knowledge, and best practices among the TERENA members. Starting-up NOCs have different problems than the majority of TF-NOC participants. It was agreed that TF-NOC will share as much information as we can with them openly, but the primary aim remains the support of the TERENA community.

3.   Standardisation and methodology

Gareth Eason (HEAnet) gave a presentation emphasising the advances of standards based on HEAnet's recent experience. HEAnet ran a study group last year examining various standards (ISO, ITIL, OSSTMM, eTOM, etc.) and the group recommended to look at ITIL first, then ISO20000 with some exceptions. The motivations to seriously consider standard based operations were driven by three things; the significant mass of in-house designed processes started to become dangerous, ITIL was picked up by suppliers, and finally clients started to do more and more audits including IT systems so they push for standards. When we discuss about knowledge sharing and collaboration standards can help a lot especially at international level.

However, there are hurdles too such as the resistance of staff, significant training costs, complexity in procedures, some clients' resistance to change, etc. It is important that the management must buy-in and understand that standards are the essence of collaboration. Apparently, it is important to have a security team to be accredited by a standard. The lesson that HEAnet learned is that standards can be approached in little steps. We should go for the low hanging fruit and be ahead of the customers' needs. It is recommended to start examining ITIL that is not a standard but a set of good practices. For more details see the slides at http://www.terena.org/activities/tf-noc/meeting3/slides/110628-itil.pdf

From the audience Paul Noomen (SURFnet) mentioned that SURFnet has an outsourced NOC that follows ITIL procedures. In case of repeatable processes and reporting ITIL is useful. SURFnet has ITIL people in house. In experience, ITIL does not give overhead on operations (its overhead is the learning process only) although there are no figures available showing measurable savings. Maria Isabel Gandia Carriedo (CESCA) said that they have started with ITIL just to do something quickly. Mihael Dimec (ARNES) explained that they don't do much with standards at the moment, but interested in the motivations and how management can be convinced. Ernst Heiri (SWITCH) commented that standard is not the goal but the tool to provide better service. SURFnet seconded this. Maybe there is no reason to go for standards yet. Each NREN/NOC should come up with their clear business case. TF-NOC can collect these clear cases and driving forces and makes its own recommendation. Gyorgy Balazs (CERN) is willing to share their experience with standards. It is good to see that organisations are different but the problems are similar.

Peter Szegedi (TERENA) summarised that there are basically two groups of participants; the one who already started with examining standards, and the other one who is looking for driving forces, clear cases, and motivations to do so. It was suggested that participants can team up to formulate a "Standardisation/Methodology proportion sub-group" in order to:
*   share motivations and use cases for applying standard based procedures at NOCs
*   come up with recommendations and strategy on how to convince managers, customers, and internal staff to follow standard operations
*   investigate ITIL/eTOM joint training opportunities for NOC personnel (if appropriate).

HEAnet, NORDUnet, SURFnet, DANTE/GN3, BELNET, CESCA, and CERN expressed their interest to contribute to this activity. The tag [workflow] should be used in e-mail subject when posting on this topic on the tf-noc mailing list.

ACTION 22 on Peter Szegedi (TERENA) to create a "Standardisation/Methodology proportion sub-group" under TF-NOC and kick off the discussions via e-mail ASAP.

Stefan Listrōm (NORDUnet) gave a follow up presentation on the eTOM-ITIL mapping task initiated last time (see Action 18). The eTOM business process framework represents the whole of a service provider's enterprise environment. At the overall conceptual level, the eTOM framework can be viewed as having three major process areas; strategy, infrastructure and product, operations, and enterprise management.
Stefan used the example of incident and problem management to illustrate the use of both ITIL and eTOM objects and layering. Another example was used to show layering as a tool to assist focus within the business. Slides:
http://www.terena.org/activities/tf-noc/meeting3/slides/110628-eTOMandITIL.pdf

It was concluded that from a manager point of view the eTOM-ITIL mapping is interesting (to understand the overall business process) but not necessarily for a NOC engineer. It is more like a theoretical exercise however the TF-NOC Wiki will be updated with an initial mapping proposal. Action 18 remains open.

4.   NOC flash presentations

The session was started with an announcement by ACOnet. The Austrian NREN is organising a Cisco Catalyst technical workshop on 19-21 September 2011, in Vienna, Austria. The workshop is for NRENs only and free of charge. More can be found at
http://www.aco.net/cisco_nren.html

Meeting attendees then heard three NOC flash presentations given by SWITCH, NORDUnet, and CARnet, respectively. The SURFnet NOC presentation was postponed due to technical problems. IUCC also gave a talk about how to build a 24x7 NOC cheaply.

- Ernst Heiri introduced the SWITCH NOC structure, infrastructure, services, and tools. The technical staff has 8 years of average experience in operations. Outside office hours the Swiss railways (SBB) network management centre takes over the incident handling. The escalation path was explained. For details see:
http://www.terena.org/activities/tf-noc/meeting3/slides/110628-SWITCH-flash.pdf

- Stefan Listrōm introduced the NORDUnet NOC that is centralised in function but distributed in organisation. The NOC was in-housed in 2006 and huge amount of services were given on the top of the network operations. However, the operation of the dark fibre topology and the IP transit service for the Nordic NRENs are the main responsibilities. See:
http://www.terena.org/activities/tf-noc/meeting3/slides/110628-SWITCH-flash.pdf

- Ivana Golub introduced the CARNet NOC that is distributed in location between Zagreb and Split. A set of monitoring and other tools was shown. The limitation of using proprietary tools have been realised and decided to use open source tools instead. For more details see:
http://www.terena.org/activities/tf-noc/meeting3/slides/110628-CARNet-flash.pdf

Hank Nussbacher (IUCC) gave a talk about how to build a NOC cheaply, based on the Israeli NREN experience. IUCC NOC Tier 1 has been outsourced to a 24x7 front desk (provided by an ISP) since 1999. Tier 1 only identifies the problem. Tier 2 consists of 6 full time university employees on call. IUCC worked out an extra payment system for their extra work as NOC remote hands. Each people get 750 Euro extra per month to be on call. Including the cost of the 24x7 front desk, the whole solution costs approximately 1 FTE for IUCC. Slides are at http://www.terena.org/activities/tf-noc/meeting3/slides/110629-cheap-noc.pdf

A question from the audience went though if IUCC can get qualified enough personnel for that 750 Euro extra money. Hank explained that remote hands are on call; sometimes they get 2-3 calls per month sometimes none, this money is good in average compared to the duties.

5. NOC tools and other talks

Ivana Golub (CARNet) gave a talk about their L1 documentation tools. Supported documentation is important because of maintenance, control, and further development. Traditional solutions such as paper, Excel sheets, Visio drawings or AutoCAD are fine but not scalable and cannot be automated. CARNet investigated three potential tools for L1 documentation function: InMapper, TimGIS and GE Smallworld Network Inventory. Each tool has advances and weaknesses. See the slides at http://www.terena.org/activities/tf-noc/meeting3/slides/110629-documentation.pdf

CARNet decision was to wait until the optical network will evolve in major cities and see if a scalable documentation solution will then be needed. Currently the maintenance of L1 documentation is outsourced to the supplier. CARNet expressed their willingness to develop a home-grown documentation tool, if appropriate.

During the follow-up discussion SURFnet mentioned that they bought a small software package for documentation purposes (can be shown next time). GRNET decided to build their tool in-house. SWITCH came up with the idea to organise a half-day workshop dedicated to L1/2 documentation tools and features. Peter Szegedi (TERENA) added that in principle even a one-day "open source NOC tool workshop" can be organised in conjunction with the next TF-NOC meeting. The idea would be to gather NOC software engineers, open source codes and licences and organise an event where developers can give flash presentations about the tools' features, functions, modules followed by a discussion about code sharing/re-use.

ACTION 24 on Peter Szegedi (TERENA) to investigate if there is a sufficient interest in organising a one-day "open source NOC tool" workshop in conjunction with the next coming TF-NOC meeting. Proposals can be sent to the mailing list.

Leonidas Poulopoulos (GRNET) talked about topology monitoring, alerting, and visualization tools remotely via Video Conference. 70% of these tools are developed in-house mainly using Django framework and Python programming language. They use SNMP to harvest network data and MySQL database to bind data. Some of the tools are open source some of them closed. The tools' architecture and functions were presented. See: http://www.terena.org/activities/tf-noc/meeting3/slides/110629-grnet.pdf

Andreas Polyrakis (GRNET) added that the tool development was started 2.5 years ago with a minimum set of functionalities. 2-3 NOC engineers and 1 front end developer have been working on the project but not full time. The total tool development needs 1 FTE in average.

Ann Harding (SWITCH) gave a talk about GN3 view on multi-domain services and its implications on NOCs. The principle of multi-domain service delivery is that every piece of operation has two components; do it yourself and do it together. DANTE NOC for instance can cover both components but most of the NREN NOCs only cover the domain specific part. The model is complex but cannot be simplified further than that. A multi-domain NOC must bring together at least five different functions; connectivity services, coordination and operations, monitoring tools and performance, security, and workflow tools. There is no such a complex problem (operation challenges) elsewhere. A "glue", such as the multi-domain service desk or shared calendaring system for instance, is needed to enable efficient work together. Standardisation is key, that is why GN3 experimenting with eTOM. It's important to know what we can learn from eTOM. Slides:
http://www.terena.org/activities/tf-noc/meeting3/slides/110629-multidomain.pdf

6. Incident management and trouble ticketing

Gareth Eason (HEAnet) talked about incident management and how HEAnet manages incidents. Incident is an unplanned interruption to an IT service or a reduction in the quality of an IT service reported by automated alerts, customers, NOC observations or suppliers. Incidents must be managed basically to keep customers happy.

HEAnet's new incident management system was launched in April 2011. NOC was involved in the tool development from day one. Some tool parts are already open sourced. The result is much better reporting. Such minor incidences as a 2 sec outage are also captured and tickets opened and closed automatically even if the events are not escalated to the supplier. However, this level of resolution makes it possible to raise these minor events if they regularly happen. Good incident management leads to good customer service. The tool must support the process, but the process is the key as well as the integration and automation. For more details see the slides at
http://www.terena.org/activities/tf-noc/meeting3/slides/110629-incident.pdf
Gareth also gave a live demonstration of the incident management tool.

Stefan Liström (NORDUnet) talked about building and integrating a trouble ticket system. NORDUnet developed the ticketing system in-house as an extension to Jira because commercial tools were too expensive and there was no knowledge on how to re-design RT to satisfy their requirements. More details about the tool and its features can be found on the slides:
http://www.terena.org/activities/tf-noc/meeting3/slides/110629-NDNTTS.pdf

7.   TF-NOC survey panel

An open discussion was held to finalise the TF-NOC survey structure and questions. Peter Szegedi (TERENA) thanked all the contributors for the proposed questions and briefly explained the aim of the survey and its structure.

Gareth Eason (HEAnet) noted that the aim of the survey would be to figure out what software tools are used for what NOC functions and what are the practical experiences with those tools depending on the size, structure, maturity, etc. of the NOC. Thomas Schmid (DFN) commented that different people have different understanding on NOC. Some cases it is strictly for network operation in other cases it is for both network and service operations. TF-NOC should give a definition to NOC first. Peter Szegedi (TERENA) replied that in principle, the survey doesn't want to define what NOC is, and even doesn't want to figure out what the survey responders understanding on NOC is. The survey mainly focuses on NOC software tools and their functions and the NOC taxonomy related questions are only there to assess the tools against the basic NOC categories. Thomas Schmid (DFN) felt that it is not clear what functions should be included in the survey as NOC and who should answer the questions. It was agreed that at the beginning of the survey it must be clearly stated that the survey is about both network and service operations. It was also agreed to recommend at least a senior NOC engineer or manager with decent understanding on NOC tools to fill the survey in.

The meeting participants went through the proposed questions one by one and simplified the survey structure along the lines that the survey should be easy to fill in by one NOC personnel and only those taxonomy related questions should be asked that are relevant from the NOC tool assessment point of view. The draft version of the survey was distributed among the meeting participants as well as on the tf-noc mailing list for final comments.

ACTION 23 on Peter Szegedi (TERENA) to incorporate the final comments, finalise, and launch the TF-NOC survey by 11 July 2011.

The survey will run at least until the end of September 2011 and the preliminary survey results will be discussed on the next coming TF-NOC meeting.

8.   Next steps, AOB and close

Meeting attendees agreed that the next coming TF-NOC meeting should be held in October-November timeframe. TERENA Secretariat will do a quick Doodle poll to figure out the preferences of the task force participants. The Doodle poll is available at
http://doodle.com/fcnzhu72ykve5x5u

BELNET, the Belgian NREN provisionally offered to host the meeting in Brussels, Belgium. The central location in Europe would be desirable if TF-NOC participants decide to hold a one-day Open Source NOC tool workshop in conjunction with the meeting.

The next coming meeting dates and location will be announced on the mailing list and on the TERENA website preferably before the major holiday season starts in Europe. The meeting was close by Stefan Liström (NORDUnet), special thank was given to SWITCH for the excellent host of the meeting. Majority of the TF-NOC meeting participants attended the DANTE APM meeting

afterwards.

List of actions

TSec(11)031	Who	What	Update
ACTION 16	Maria Isabel Gandia Carriedo (CESCA)	to approach ESnet and ask more information about the NOC tool taxonomy that they are maintaining on the web.	Give one more try and then be proactive.
ACTION 18	Stefan Liström (NORDUnet)	to create a preliminary list of eTom functions on the Wiki and see how many and if they are useful to use as a template for NOCs.	Postponed to October 2011
ACTION 22	Peter Szegedi (TERENA)	to create a "Standardisation/Methodology proportion sub-group" under TF-NOC and kick off the discussions via e-mail.	ASAP
ACTION 23	Peter Szegedi (TERENA)	to incorporate the final comments, finalise, and launch the TF-NOC survey.	11 July 2011.
ACTION 24	Peter Szegedi (TERENA)	to investigate if there is a sufficient interest in organising a one-day "open source NOC tool" workshop in conjunction with the next coming TF-NOC meeting. Proposals can be sent to the mailing list.	September 2011

List of participants

NAME	AFFILIATION
Ana Medina Barahona	RedIRIS
Andreas Polyrakis	GRNET
Ann Harding	SWITCH
Ernst Heiri	SWITCH
Fabian Mauchle	SWITCH
Felix Kugler	SWITCH
Gareth Eason	HEAnet
Gyorgy Balazs	CERN
Harald Michl	ACOnet
Håvard Kusslid	UNINETT
Ivana Golub	CARNet
Jan Gruntorád	CESNET
Joachim Vertommen	BELNET
Kurt Baumann	SWITCH
Maria Isabel Gandia Carriedo	CESCA

Mian Usman	DANTE	
Mihael Dimec	ARNES	
Paul Noomen	SURFnet	
Peter Szegedi	TERENA	
Pieter Hanssens	BELNET	
Stefan Liström	NORDUnet	
Tomislav Srivojevic	CARNet	
Willi Huber	SWITCH	
Thomas Schmid	DFN	
Toby Rodwell	DANTE	*Day 2 only*
Dave Wilson	HEAnet	*Day 2 only*
Hank Nussbacher	IUCC	*Day 2 only*
Wiktor Procyk	*PSNC*	*Remote*
Leonidas Poulopoulos	*GRNET*	*Remote*
Yannis Mitsos	*GRNET*	*Remote*