GreenSonar

co-chairs’s:
(?) Cees de Laat & (?) Inder Monga

GGF35, Delft, June 2012
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Agenda

Monday Mar. 18th, 9h30 – 10h30

- Agenda Bashing
- Proposal
- Leadership
- Any Other Subject
- Adjourn
We investigate: for complex networks!
LinkedIN for Infrastructure

- From semantic Web / Resource Description Framework.
- The RDF uses XML as an interchange syntax.
- Data is described by triplets (Friend of a Friend):

```
Subject   Predicate   Object

Location          Device          Interface          Link
  name  description locatedAt encodingType
  connectedTo capacity encodingLabel
```
Multi-layer descriptions in NDL

- IP layer
- Ethernet layer
- STS layer
- UTP layer
- OC-192 layer
- SONET switch with Ethernet intf.
- Ethernet & SONET switch
- SONET switch
- SONET switch with Ethernet intf.

Université du Quebec
CA Net Canada
StarLight Chicago
MAN LAN New York
NetherLight Amsterdam
Universiteit van Amsterdam

End host
End host
Path between interfaces A1 and E1:
A1-A2-B1-B4-D4-D2-C3-C4-C1-C2-B2-B3-D3-D1-E2-E1

Scaling: Combinatorial problem
Information Modeling

Define a common information model for **infrastructures** and **services**. Base it on Semantic Web.

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J. van der Ham, F. Dijkstra, P. Grosso, R. van der Pol, A. Toonk, C. de Laat
*A distributed topology information system for optical networks based on the semantic web*,
In: Elsevier Journal on Optical Switching and Networking, Volume 5, Issues 2-3, June 2008, Pages 85-93

R. Koning, P. Grosso and C. de Laat
*Using ontologies for resource description in the CineGrid Exchange*
“Show Big Bug Bunny in 4K on my Tiled Display using green Infrastructure”

- Big Bugs Bunny can be on multiple servers on the Internet.
- Movie may need processing / recoding to get to 4K for Tiled Display.
- Needs deterministic Green infrastructure for Quality of Experience.
- Consumer / Scientist does not want to know the underlying details.

➔ His refrigerator also just works.
RDF describing Infrastructure
“I want”

Application: find video containing x, then trans-code to it view on Tiled Display
The Ten Problems with the Internet

1. Energy Efficient Communication
2. Separation of Identity and Address
3. Location Awareness
4. Explicit Support for Client-Server Traffic and Distributed Services
5. Person-to-Person Communication
6. Security
7. Control, Management, and Data Plane separation
8. Isolation
9. Symmetric/Asymmetric Protocols
10. Quality of Service

Nice to have:
• Global Routing with Local Control of Naming and Addressing
• Real Time Services
• Cross-Layer Communication
• Manycast
• Receiver Control
• Support for Data Aggregation and Transformation
• Support for Streaming Data
• Virtualization

I Want

- RDF Semantic descriptions
- Context information
- Logging History
- Policy
- APP Feedback
- Monitoring

- Graph Theory
- Machine Learning
- Sustainability

Cloud Computing
ECO-Scheduling

What type of route should be planned?

- Fastest route
- Eco route
- Shortest route
- Avoid motorways
- Walking route

8:37 am
Optical Exchange as Black Box

Optical Exchange

Optical Cross Connect

Switch

TDM

Store & Forward

DWDM mux/demux

TeraByte Email Service

Ref: gridnets paper by Freek Dijkstra, Cees de Laat
Links

• http://ext.delaat.net/
• http://ext.delaat.net/smartgreen/index.html
• http://ext.delaat.net/news/2012-03-23/index.html
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