GRID sites connectivity database design

Anthony Teslyuk, RRC KI

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Information Society

Purpose

When RC connectivity database is needed?

- Interactions between ENOC, NRENs and RCs
- Deployment of new network services
- Network problems troubleshooting
- Correct processing of NREN tickets

Content

What should be stored in the database?

- **Grid sites information**
  - Contact information
  - Address space information
  - Connectivity information
- **Network topology information**
  - Inter-domain connectivity
- **Network services information**
  - Service deployment information
  - Bandwidth capabilities information
  - End-to-end SLAs specific information

Key features

RC connectivity database should be:

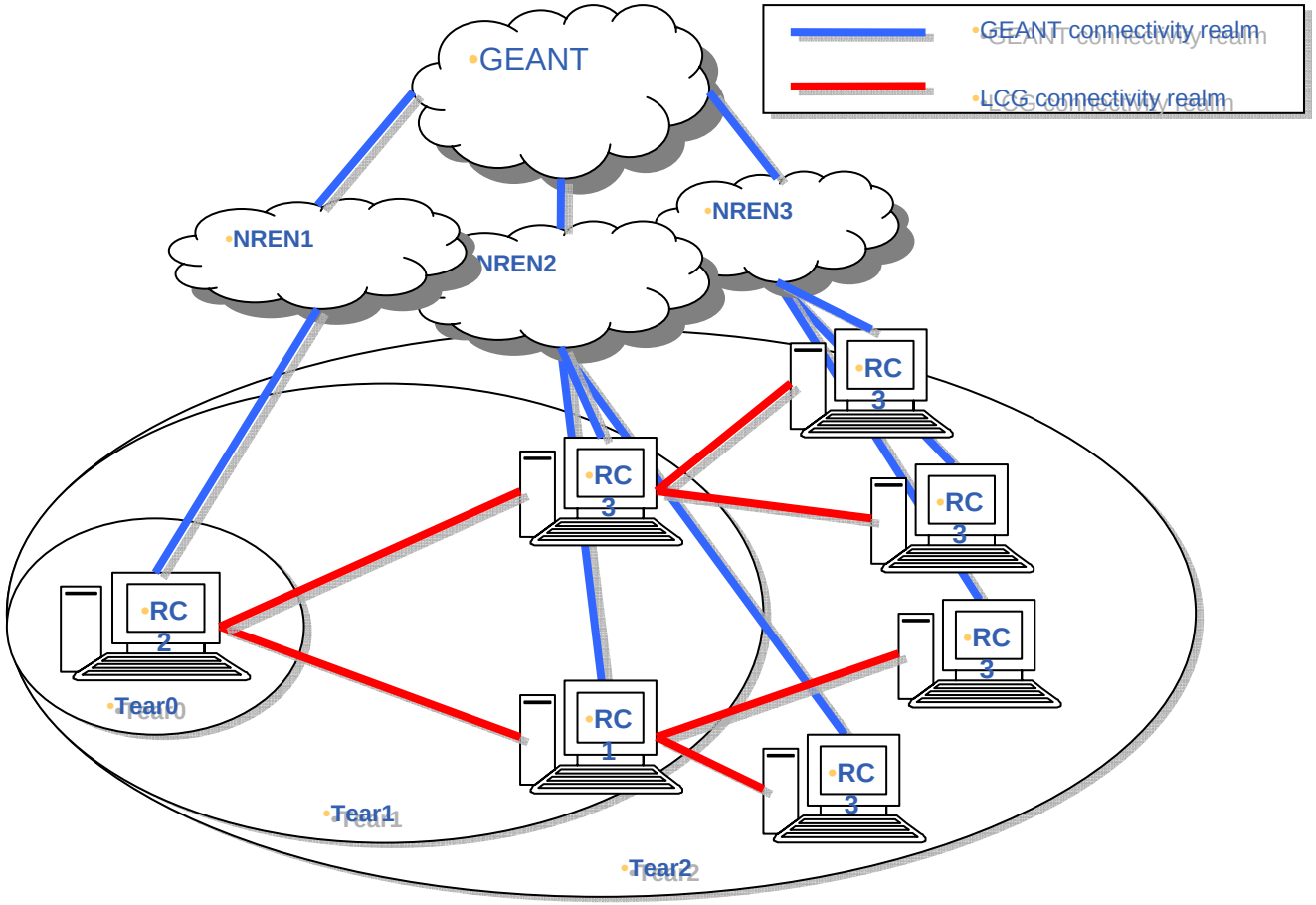
- General enough to contain detailed description of heterogeneous network infrastructure
- Flexible for changes in technology and topology
- Easy to create and maintain

Design concept

Network topology representation

- **Nodes**
  - Network domains (AS as a first approach)
  - GRID site networks
- **Links between nodes**
  - Virtual links instead of physical (Easier to collect and maintain)
  - Functional relationship associated with links (uplink, peer, backup)
  - Preference (in cases with several alternative links)
- **Connectivity realms (see next slide)**

Connectivity realms

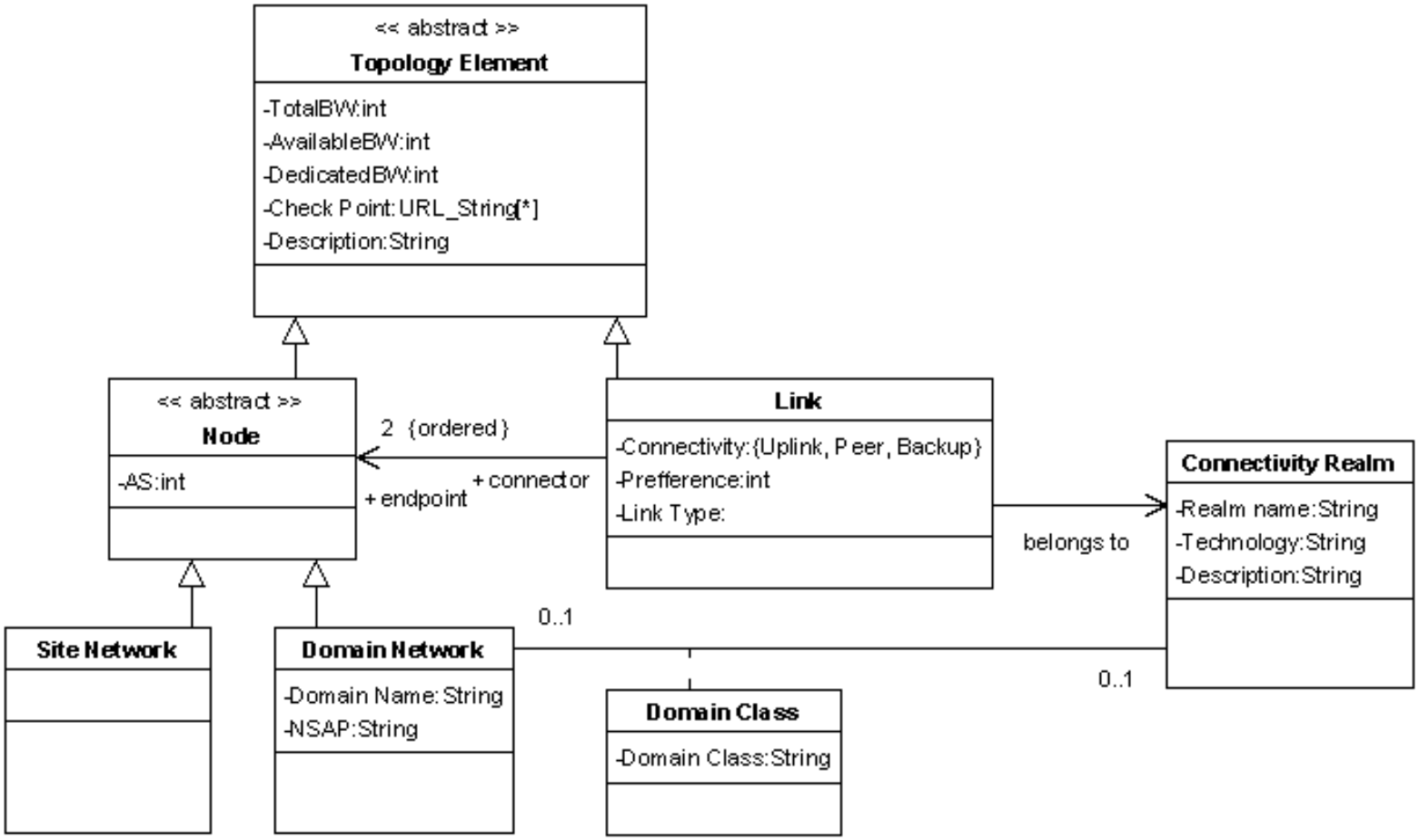


Design concept

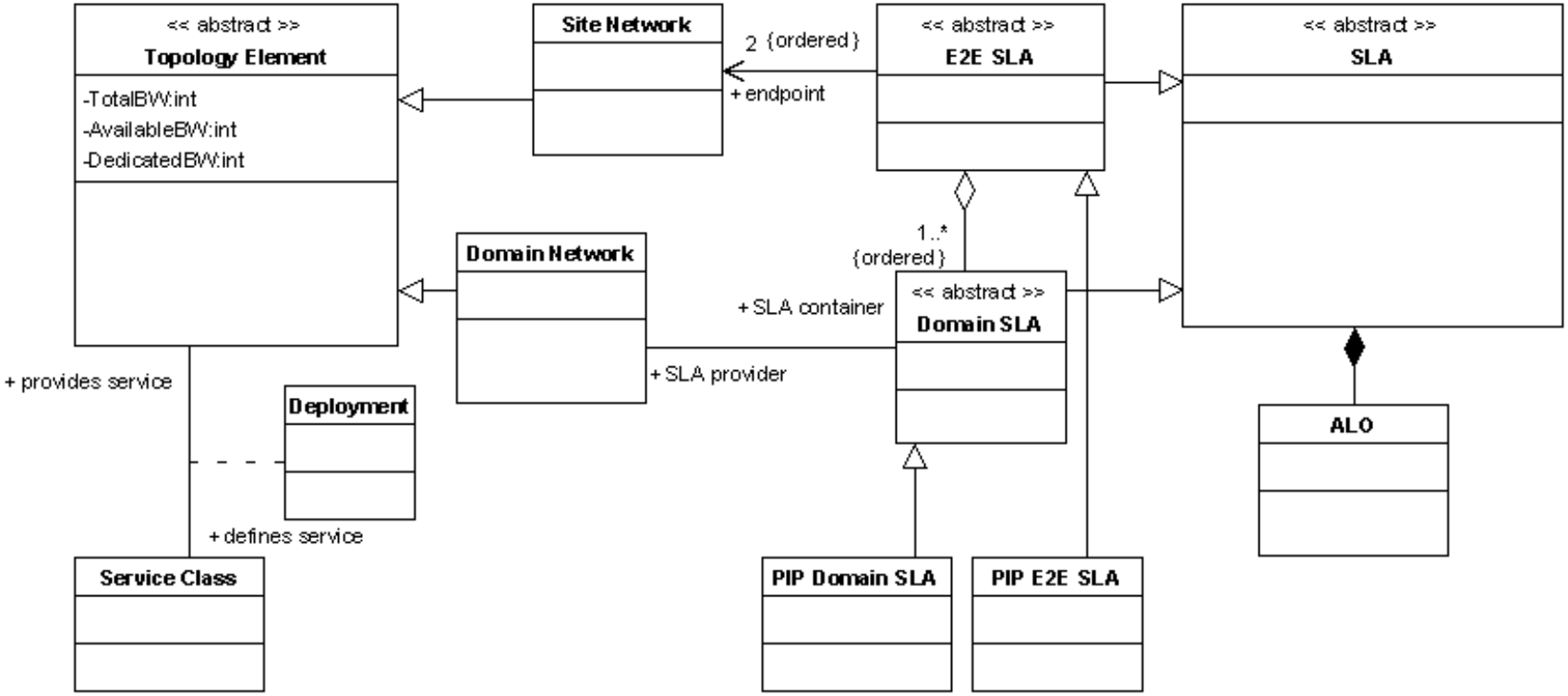
Network services representation

- **Specific network services associated with nodes and links (e.g. PIP)**
- **Bandwidth capabilities**
  - Technically available
  - Administratively available
  - Dedicated to GRID resources
- **SLA services**
  - Domain SLAs (associated with domains)
  - End-to-End SLAs (associated with pairs of sites)

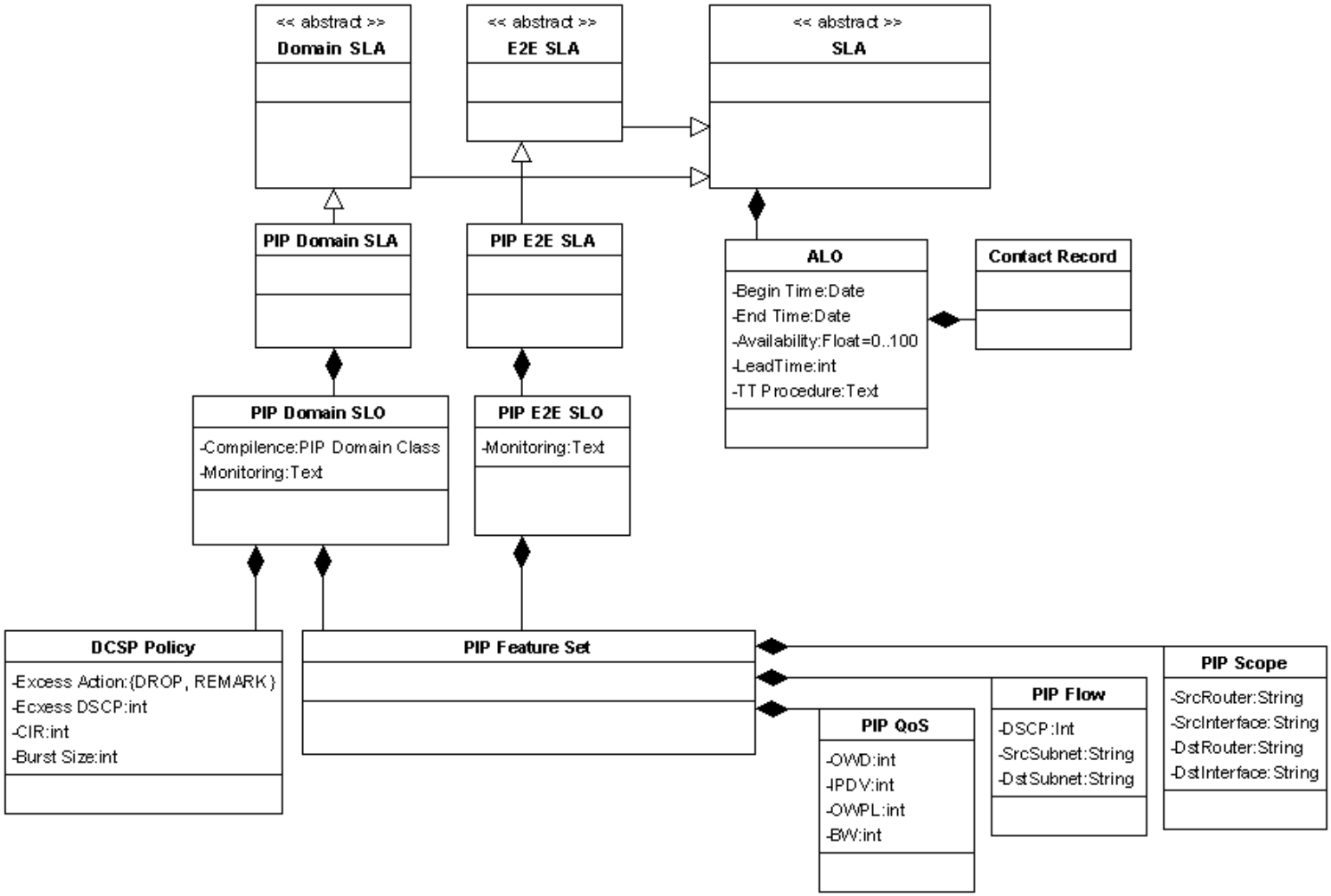
Topology classes UML diagram



Services UML diagram



SLA UML diagram



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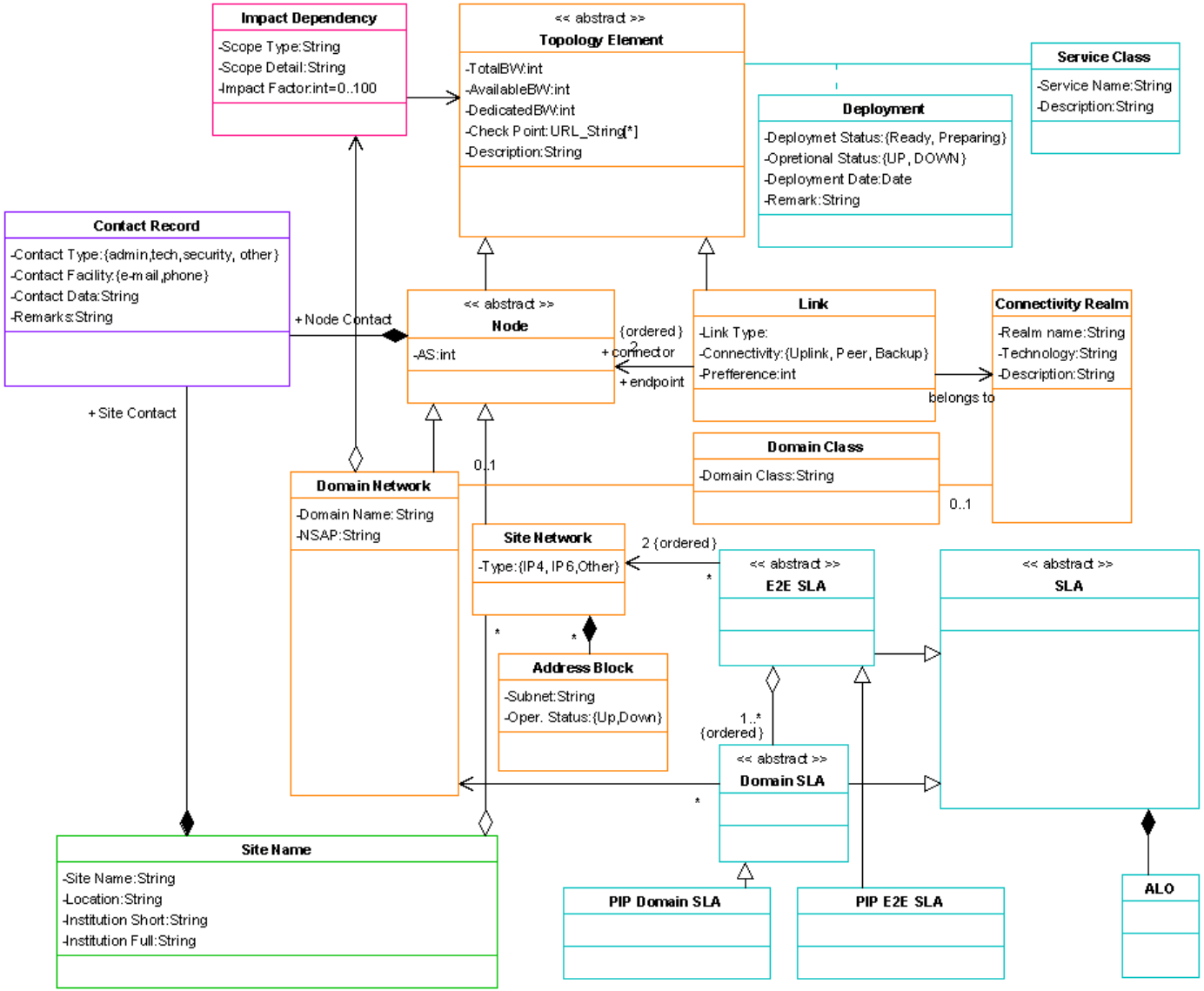
Overall UML diagram



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