Lilith: an Interconnection Architecture Based on Label Switching for Spontaneous Edge Networks

Spontaneous network
- Unmanaged
- Multi-hop
- Heterogeneous
- Sensors / actuators

Layer 2.5 switching
- single IP subnet
- MPLS interconnection
- on-demand LSP establishment based on an ad hoc routing protocol

Lilith architecture

Low overhead
<table>
<thead>
<tr>
<th>Host routes</th>
<th>Lilith</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.9 ms (ARP)</td>
<td>6 ms</td>
</tr>
<tr>
<td>91.4 Mb/s</td>
<td>91.0 Mb/s</td>
</tr>
<tr>
<td>100%</td>
<td>99.6%</td>
</tr>
</tbody>
</table>

Testing
- development using UML (User Mode Linux)
- performance evaluation on wired network
- experiments with wireless laptops

Broadcasts
- relaying is needed
- loop avoidance
- packets are encapsulated in Lilith packets and broadcasted similarly to routing requests

Backup routes
- IMA packets trigger route failure detection
- fast rerouting to the backup path