

deutsches forschungsnetz





DMon : Network Service Monitoring @ DFN-NOC

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What is it?

- DMon : German: Dienste , English Services
- Initially replacement of Cacti and MRTG (Dashboads, Weathermaps, Graphs) (SNMP based Monitoring)
- Developed with SW-Engineers @ DFN-Hamburg (DFN-CERT)
- Provides
 - > GUI for Network Services Department at DFN with initial focus on DFN-NOC requirements.
 - > Interface to DFN's customer portal (Graphs on customer's access Link Load)
 - Statistics for network reporting
 - > Self Topology Learning through interface with Topology Database
- Extensions on the Roadmap: Streaming Telemetry, Partly Optical Monitoring: (Fiber Breaks, Optical VPN Traffic Load, ...)



System Design Goals

- > DMon DB : Modelling of all monitored Objects with dependencies
 - > To provide very fast access to views on network services
 - To allow alarm feature to show fault impact and support root cause analysis
- GUI to provide
 - Very fast access
 - to all relevant monitored data on a given network service
 - to graphs directly from weathermap
 - Configuration utility provides setup of
 - Dashboards of Weathermaps
 - > Weathermaps designs
 - Savalbe selection of graphs,
 - Savable views on top-N graphs with filters



Dashboard and Weathermaps





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- Selection of
 Weathermaps in
 Dashboards
 Here: Typical Dashboard
 used @DFN-NOC
- Access WM from Dashboard
- Clear Alarm Display using Background Color

Weathermap Functionality (I)



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- Weathermap shows configured Metrics (here link loads and Alarm state (if traffic is 0)
 Zeigt Auslastung und Fehlerzustände
- Pop-Up Graphs when hoover on links

Weathermap Functionality (II)



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- Permanent View on one ore more Link
 Graphs
- From Link Graph
 access to research
 component to get
 deeper views in time
 and other link metrics.

Research Component



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- Left-Sidebar, provides
 - Access to manually configured Views
 - Automated views with configured filters and sortings
 - Pop Devices Views, learned from Topology DB
- Right-Sidebar
 - Toolbar that provides configuration options on object filters, metrics, sortings, graph arrangements.

Typical Use Case : Fault Analyis





- 1) Alarm reports drop of optical Rx Power
- 2) Check if there are incoming CRC erros
- 3) Check on Impact to network service look at metric packet error ratio: here ca. 10⁻⁴
- 4) Look if there are drops in bitrate and packet rate

5) no big impact on overall service but impact on TCP on long high bandwidht paths.

=> customer is notified by NOC