6WINDGate Management

#SPEEDMATTERS For Serious Networks
6WINDGate Open and Customizable Management

- **YANG-based management engine**
- **Configuration**
  - Linux, NETCONF and CLI
- **Granular statistics polling**
  - CLI, NETCONF and SNMP
- **sFlow**
- **KPIs**
  - Streamed to a time-series database for analysis through a customizable graphical fronted
- **Day-0 deployment and Day-1 configuration**
6WINDGate Standard-Based Management Architecture

- **Configuration**
  - NETCONF-based configuration
  - 6WINDGate CLI client

- **Engine and data store**
  - YAMS: Python-based engine configuring and monitoring all network components
  - YANG model data store

- **Monitoring / analytics**
  - SNMP / sFlow APIs
  - Telegraf KPI agent collecting all statistics ready for streaming
6WINDGate Configuration

- **YANG-based configuration engine and datastore with NETCONF support**
  - Startup, running and candidate datastore support
  - Data consistency and constraints enforcement according to YANG models
  - Full transaction and concurrency support
  - Programmatic interface

- **CLI**
  - NETCONF client with YANG-based command validation
  - Contextual help and completion
  - Configuration files management (save/restore)

NETCONF API

- Process received requests
- Notify configuration changes and operational state requests
- Configure and monitor the system

Data Plane

YANG models

Management Daemon (YAMS)

Linux kernel and daemons

Synchro
Granular statistics polling
- CLI or custom NETCONF client
- Legacy SNMP

sFlow
- Data plane packet sampling for integration with third-party collectors

KPIs
- KPIs are exported to TSDB (Telegraf / InfluxDB)
- Analysis with graphical frontend (Grafana)
- Customizable dashboards on [github](https://github.com)

6WINDGate Monitoring / Analytics

NetCONF
- YANG
- CLI

SNMP
- OpenNMS
- Nagios

sFlow
- SolarWinds
- NETSCOUT
- Arbor

Telegraf
- InfluxDB

Analysis with graphical frontend (Grafana)
6WINDGate Management Extensibility

- Extend CLI (automatically with YANG model)
- Extend YANG Model
- Interface with a NETCONF client
- Integrate Telegraf or Influxdb with other tools
- Customize dashboards
- Add or extend KPI
- Replace Telegraf
- Engine and Data Store
  - YANG models
  - Management Daemon (YAMS)
  - Data Plane
  - Linux kernel and daemons
  - Configuration
    - CLI
    - NETCONF Client
    - NETCONF server
  - Monitoring / Analytics
    - KPI
    - SNMP
    - sFlow
  - Interface with a NETCONF client

6WINDGate Management Plane

- CLI
- sFlow
- KPIs
- Routing Add-on
- Security Add-on
- VRRP Add-on

Management Baseline
6WINDGate Management Modules

- 6WINDGate can be managed by Linux thanks to the Linux / Fast Path Synchronization module

- 6WINDGate Management modules provide integrated management including CLI and programmatic APIs instead of Linux shell and inconsistent configuration files

- Management Baseline provides Fast Path management
  - NETCONF, SNMP
  - YANG-based datastore (sysrepo)

- CP and HA management through add-ons
  - Routing, Security
  - VRRP

- Additional user interface modules
  - CLI
  - Analytics / KPIs
  - Analytics / sFlow
Example Of Management Extension
Example: Add Management For A Telnet Server

- See example in 6WINDGate Management Baseline Module Datasheet