Torrus software:

Overview of challenges and new features

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What Torrus is today

- Industry-proven performance monitoring solution and replacement of Cricket, Cacti, MRTG
- Free, Open Source software
- High performance of SNMP polling
- Hierarchical data structure
- Adaptable, modular design
- Designed for process automation

SNMP discovery engine

- Modular design
- Flexible configuration
- IF-MIB discovery for virtually any vendor
- Multi-threading gains speed dramatically
- Extensive discovery for Cisco routers, Cisco class-based QoS, DOCSIS CMTS

XML Configuration

- Easy to generate from programs
- Takes time to understand
- Takes more time to start editing by hand
- Usually generated by the discovery engine, so nobody cares anyway

Hierarchical database

- Advantages: top-down inheritance; data abstraction; fast and uniform access
- Disadvantages: whole tree needs re-compilation after changing the XML configuration; difficult to implement the incremental compiler; some networks are difficult to model (e.g. all modems in a DOCSIS network)

SNMP collector performance

- Up to 50K SNMP objects every 5 minutes without much tuning
- Up to 200K SNMP objects every 5 minutes from a single server (requires careful planning and tuning, as well as hi-end hardware)

Collector challenges

- Distribute the load among all CPU cores
- Distribute the CPU and disk I/O load evenly in time, across the collecting interval

Collector enhancements

- Split the collecting job into smaller tasks (so-called dispersed timeoffsets)
- Use of multi-threading: a background thread writes to RRD files (since 2006-07-21)

Collector enhancements (cont.)

- Retrieve index mapping tables during the collecting period, and minimize the initialization time (since 2006-12-03)
- Run multiple collectors per tree (since 2007-06-16)

Threshold monitor

- Expressions are monitored, not just values
- Expressions can span multiple data sources
- Multiple severity levels can be defined
- Flexible notification paths (Email, SMS, SNMP trap, ...)

Monthly traffic reports

- 5-minute counter data for selected sources is stored to the SQL database
- Monthly reports are generated for bandwidth average, maximum, 95th percentile, and total volume
- Can be used for 95th percentile billing

Reference installations

- Cablecom
- Bluewin
- Comcast
- Bell Canada
- Some U.S. government departments
- Few hundred smaller installations, most of which are unknown to me

Future plans: short-term

- IPv6 support
- Plain-text export of collected data
- Enhancements for distributed, multi-server installations
- Whatever the paying customer wants :-)

Future plans: long-term

- Incremental configuration compiler
- Database model suitable for dynamically changing networks (such as CPE monitoring)
- Granular access control
- Ajax-driven WebUI with custom preferences and favourites

Questions and live demo