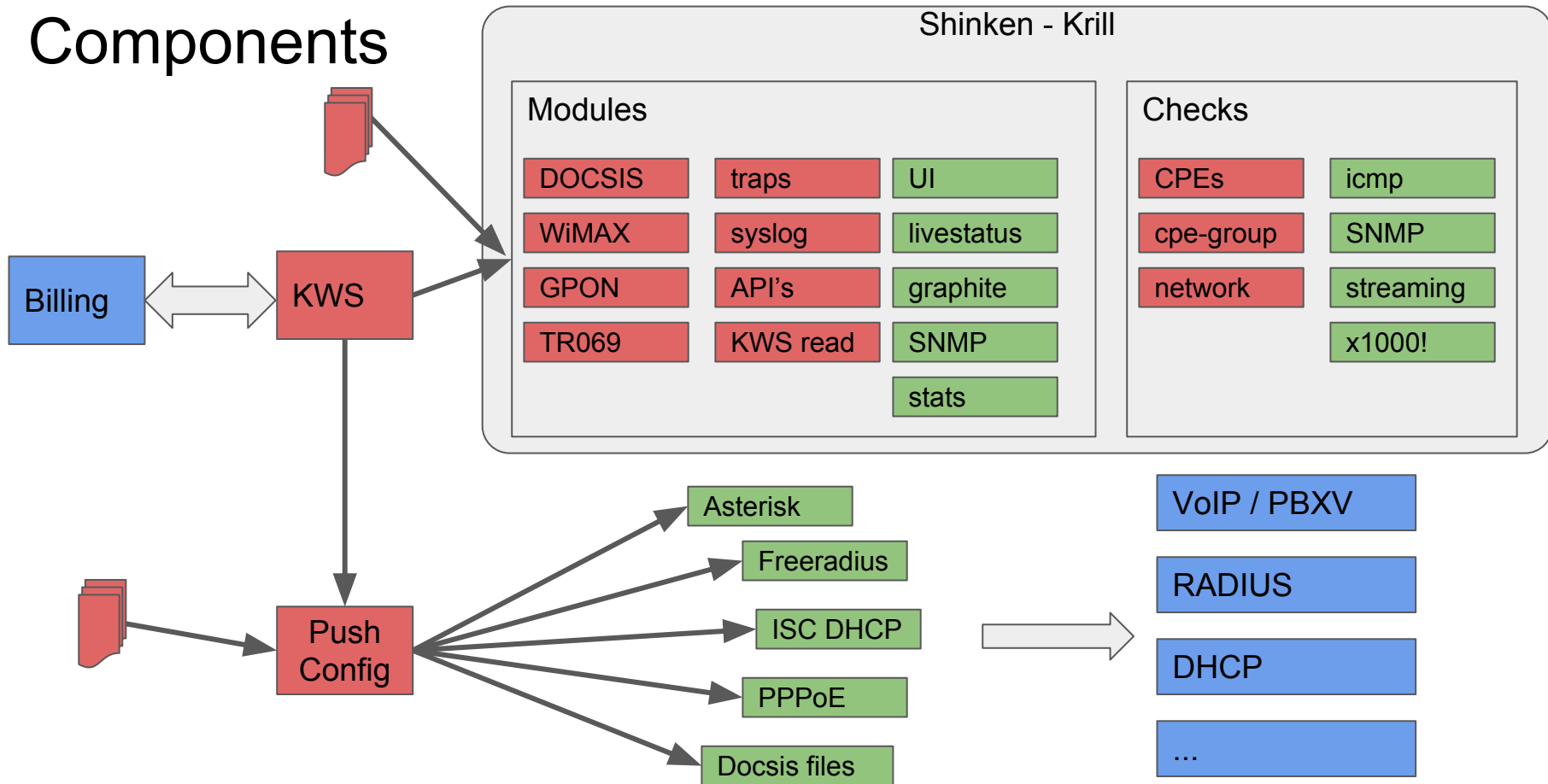




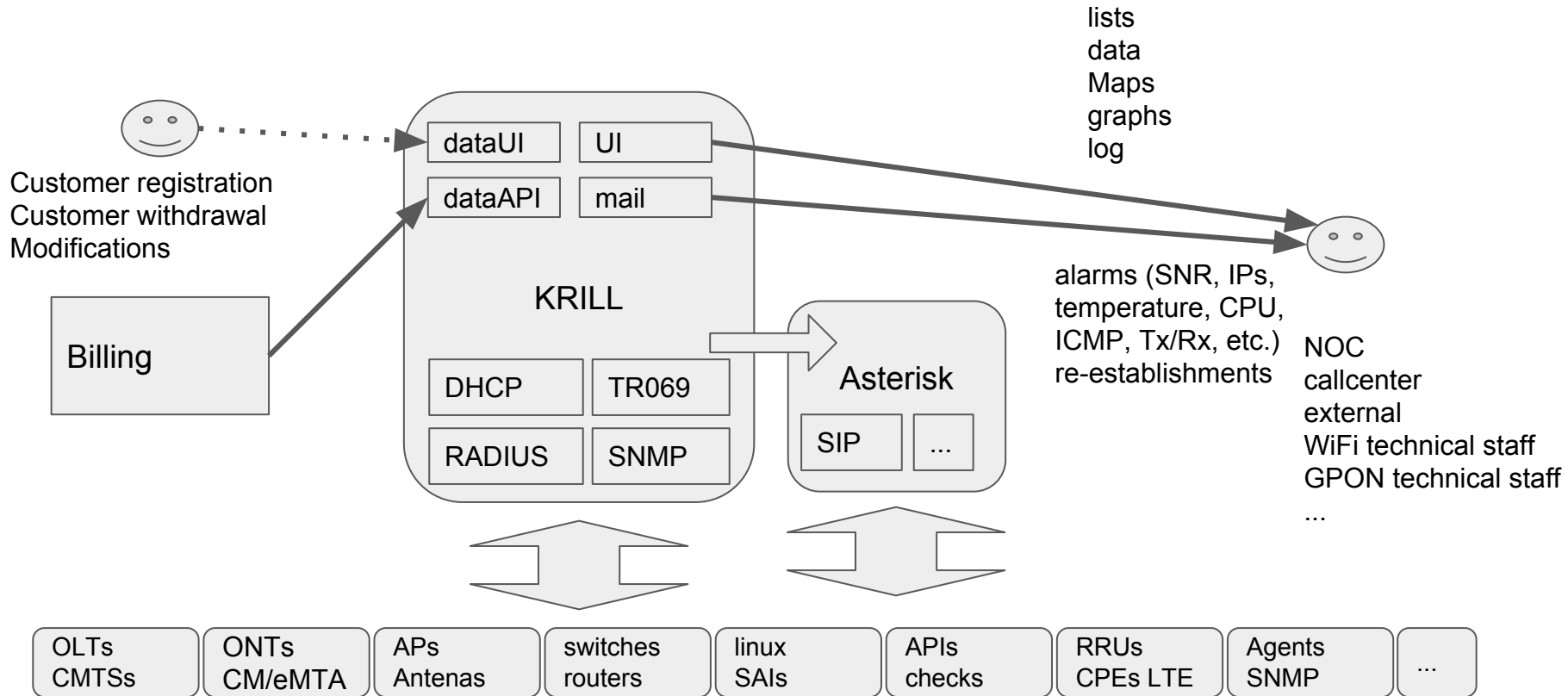
KRILL

**Software for provisioning and monitoring, specifically designed for ISPs that use
GPON, DOCSIS and / or WiFi / WiMAX access technologies**

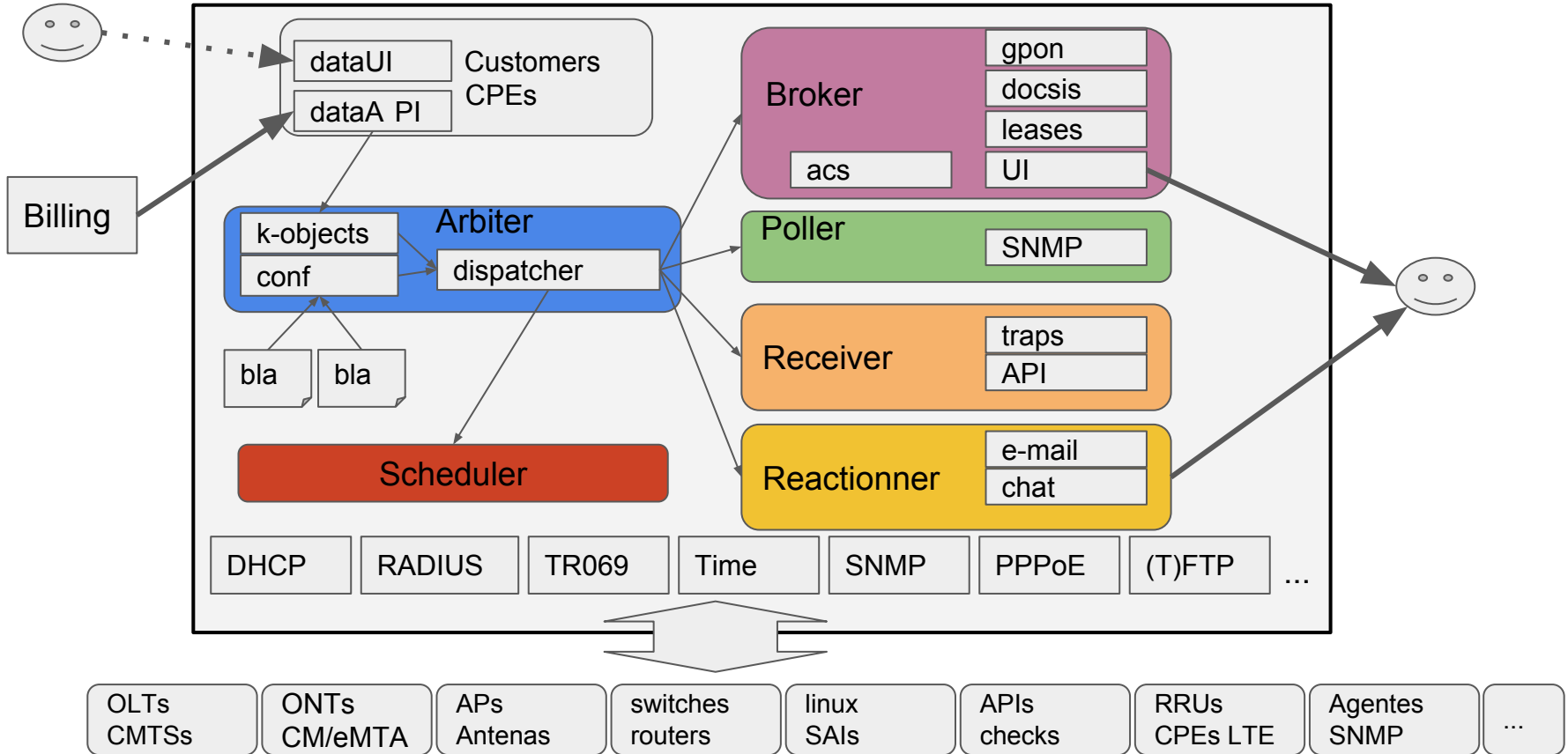
Components



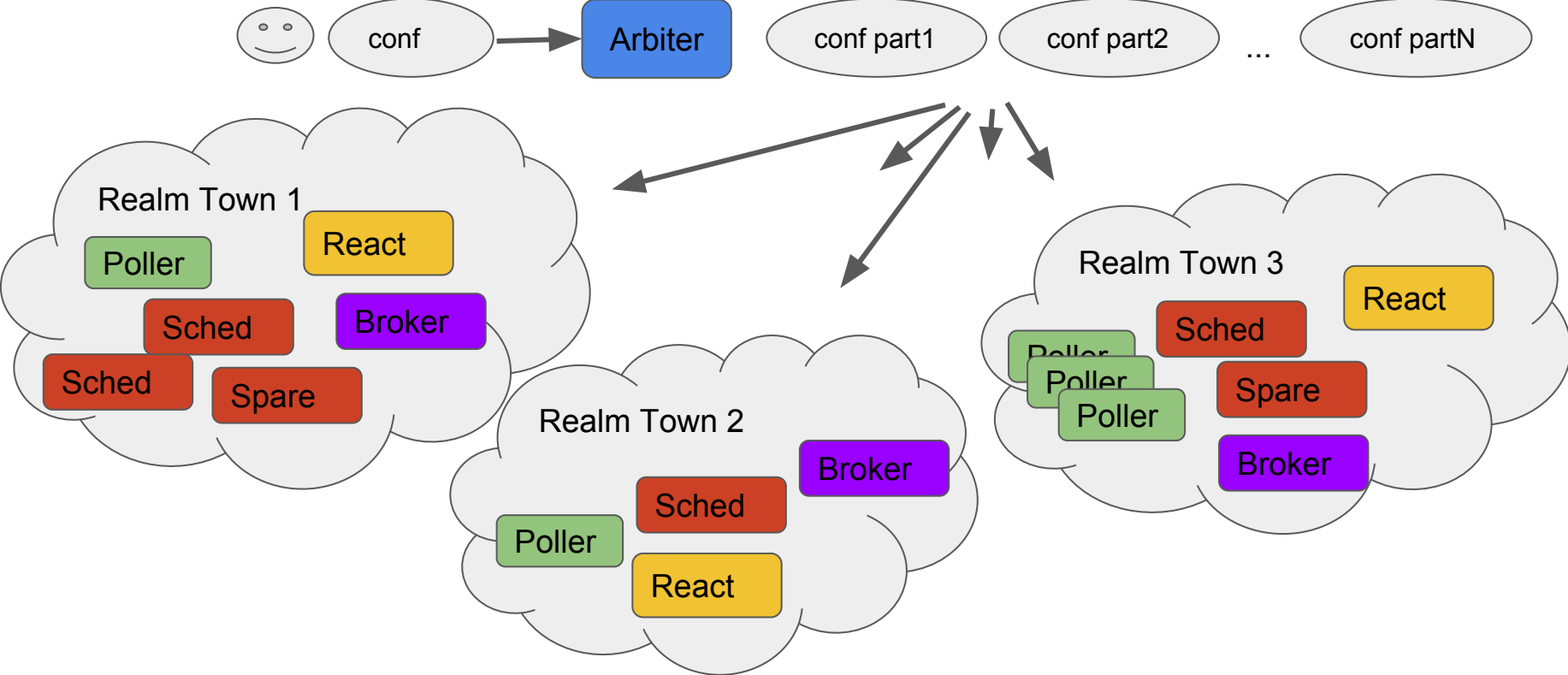
Architecture in Single Node



Architecture in Single Node - Detail



Distributed architecture



GPON module

Provisioning

- SNMP/OMCI/TR069
- DHCP/PPPoE(RADIUS)
- Initial configuration according to values in the Web Service, in a few seconds
- Automatic reconfiguration of the ONU when changing a port in the OLT
 - Disprovision of the ONUs out of service
- OLTs: Huawei, ZTE, Televes
- ONUs: any compatible
- IP (public) reserved by ONU
- Reconfiguration if speed changes, profile TV, etc.
- Complete configuration of as many WANs per ONU as required
 - Multiprofile: Public IPs, fixed, nated, IPTV services, ...

Graphs

- CPU per card
- Temperature per card
- Parameters Tx Rx per ONU
- Bandwidth ONU
- ONUs online/offline per port OLT.

Maps

- ONUs with Tx/Rx problems
- ONUs with services problems

Alarms

- Excessive attenuation per ONU
- Percentage of ONUs with problems per OLT port
- Temperature per OLT card
- CPU for each OLT card
- Connectivity with OLT
- ONUs online (only selected ones)
- Correct / incorrect provision
- Correct configuration in OLT per each new ONU
- VoIP registration

DOCSIS module

Provisioning

- Suitable for any CMTS (Euro)DOCSIS
- CMs/eMTAs de Cisco, Arris, Hitron, Scientific-Atlanta, Motorola, Thomson. Any CM (Euro)DOCSIS could get integrated.
- DHCP, TFTP, syslog, ToD...
- IP reserved per CPE behind CM.
- Automatic reconfiguration of CM in case the profile changes
- Registration of IPs granted to each router / PC behind each CM.
- TR069

Graphs

- Differentiated and aggregated metrics for each downstream (DN), upstream (US), macdomain (MD), fiber node (FN) or CMTS.
- Bandwidth by CMTS, MD, FN, DS, US ,.
- Ancho de banda, parámetros de transmisión y calidad de servicio por CM.
(Everyone in DOCSIS 2.X y 3.X)

Specific maps

- CMs with Tx/Rx problems
- CMs with QoS problems

Alarms

- DS/US Saturation.
- Percentage of CMs with problems. per CMTS, MD, DN, UP, DN.
- Transmission parameters per CMTS, MD, DN, UP, DN.
- Connectivity, TxRx, QoS, VoIP parameters for the selected CMs.

WiMAX module

Provisioning

- Generation of files by AP and client antenna (STA).
- Reassignment of antenna to AP
- Firmware update by AP / STA
- Intelligent RADIUS (unpaid, protection against ex-clients, ...)

Graphs per AP

- Bandwidth
- Modulation
- Registered STAs

Graphs per STA

- Bandwidth
- Quality
- Modulation

Specific maps

- STAs according to distance
- STAs according to quality
- APs according to location

Alarms per AP

- Number of registered STAs.
- Modulation
- Resources
- ICMP / latency

Alarms per STA

- Tx / Rx: bandwidth, SNR, distance to AP
- QoS: modulations, latencies, ccq, quality.

Other modules

Data entry

- Client API / Complete CPEs for billing
- Reception of SNMP traps.
- UDP syslog reception.
- Input API

Web interface

- Simple search engine (google type)
- Maps
- Graphs
- Reports

Monitoring

- Different level alarms
- Notifications
- Scales
- Schedules
- Filtering according to user profiles

Data export

- notifications by group chat, mail, xmpp, ...
- Results, metrics and states available in TCP API.

Services re-configuration

- RADIUS
- Asterisk
- DHCP
- config-files

Software

- Fork de shinken
- Modular desing
- Interoperable
- Scalable
- GPL

And what do I think looking at the messages on de mobile?

- I see that my RADIUS server is taking more than 300ms to support the entry of clients. I have to upload the PPPoE timeout while I can not expand the RAM of my virtual machine server.
- The light has gone part of the town. When clients without service call me, I don't know what to tell them.
- The light has gone off in my CPD; the UPS has entered in battery mode. I have 4 hours to go to start the generator.
- The air conditioning does not work ... or can not cope. Weather I fix it, or in a short time a card will be broken witch, appart from being expensive, will leave without service during many hours for hundreds of clients.
- I have noise in the 125MHz channel of my coaxial network. It is significantly affecting the QoS of 40-50 clients.
- Two ONTs of the City Council have problems on a daily basis. Probably the connectors of the TAP are oxidized... there is where I set the cheap ones...
- My ISP has been making a peering change this morning ... and it looks like it has taken more time than usual. My clients have run out of internet access for almost two hours. And its the third time it happens this week. I may be claiming the return of this month fee.
- The subcontractor that made the external plant of the optical fiber of the PON network has to review 14 sockets that are attenuating more than 25dB. Until all of them are perfect, I do not pay.
- The firewall of my telephony server is rejecting the attempts to register my SIP terminals. I think I'm going to change the provider.
- etc