PROTEZIONE CIVILE
Presidenza del Consiglio dei Ministri
Dipartimento della Protezione Civile

Kinemetrics

National Accelerograph Network (RAN) of the Civil Defense Department in Italy (DPC) maintained by Open System & Service Department

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Antelope User Group Meeting
San Diego, CA
January 14 – 16, 2015

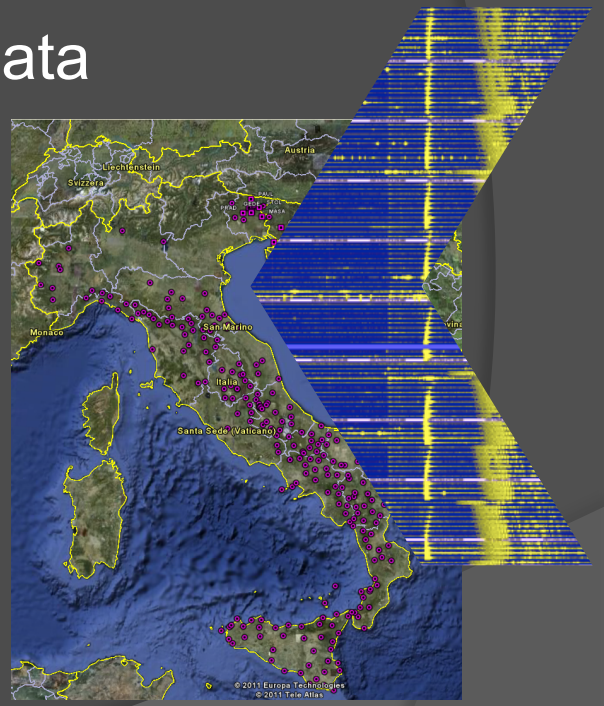
Open Systems & Services
KINEMETRICS

What does OSS for the Italian National Accelerograph Network (RAN)?

- OSS supports Italy's Civil Defense Department (DPC) in its efforts to provide a high-available accelerograph network by carry out
  - Data Center operation (2 IT personnel)
  - Data Center update & maintenance (onsite visits every 9 months)
  - Station upgrade & scheduled maintenance (continuous effort)
  - Station unscheduled maintenance (5 days response)
  - Temporary station installation (as needed)
  - Educational outreach program (1+ temporary installation at a school)
- Station availability since interception (Oct 2012) of service contracts
  - Daily station availability: 98.3%
  - Goal: 98%

ASPEN Open System Solution

- Based on the Antelope Environmental Software
- Open architecture for interoperability, data exchange and custom programing
- Real-Time monitoring with data driven minimum latency processing
- Extensive SOH monitoring
- Redundant Servers (upgraded Nov. 2014)
- Robust platform for information dissemination



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RAN By Numbers

- Station Total: 291
- By Com-Link

Datalogger	GSM	GPRS (triggered)	GPRS (continuous)
Etna	3	171	-
K2	-	6	-
Makalu	-	6	-
Everest	-	1	-
Basalt	-	-	51

- Makalu: 6
- Everest: 1
- Basalt: 51
- Others: 53

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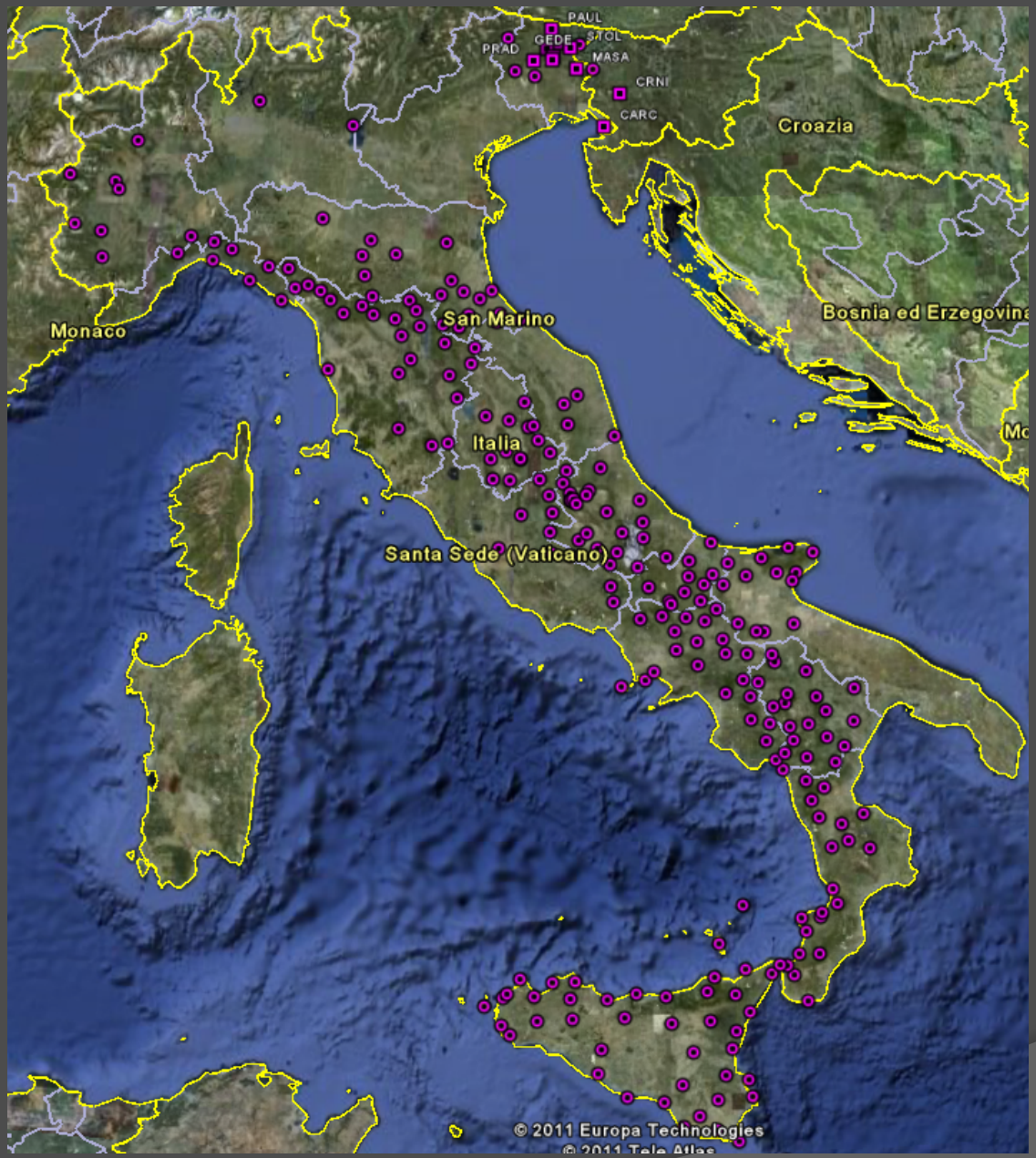
RAN



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RAN Remote Stations

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RAN Remote Stations

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DPC Data Center

DPC Data Center

- (2) Dell PowerEdge R720 servers as processing/ acquisition nodes with HA failover
- Nexsan SATABeast RAID-5 storage
- Cisco 3845 Integrated Service Router as gateway and modem server
- (2) Cisco Catalyst 2960G redundant switches
- (2) MultiTech CC1600 modem banks each with
  - (16) MT5600BR rackmount modems
  - (2) redundant power supplies
- (4) Dell OptiPlex 7010 as user terminals
- Dell Precision T3610 as video wall server with (6) 46” Samsung Commercial Grade LED displays

System Customizations

- Installed Antelope 5.4
- Configuration of Red Hat High-Availability add-on for failover of acquisition or processing system
- X-Win32/FastX
- Implemented Zabbix based Monitoring System
  - Dashboard
  - Filesystem
  - Performance (CPU, RAM, LOAD, etc.)
  - Event triggers
  - Status details (e.g., UPS)
  - Network maps
  - Event history

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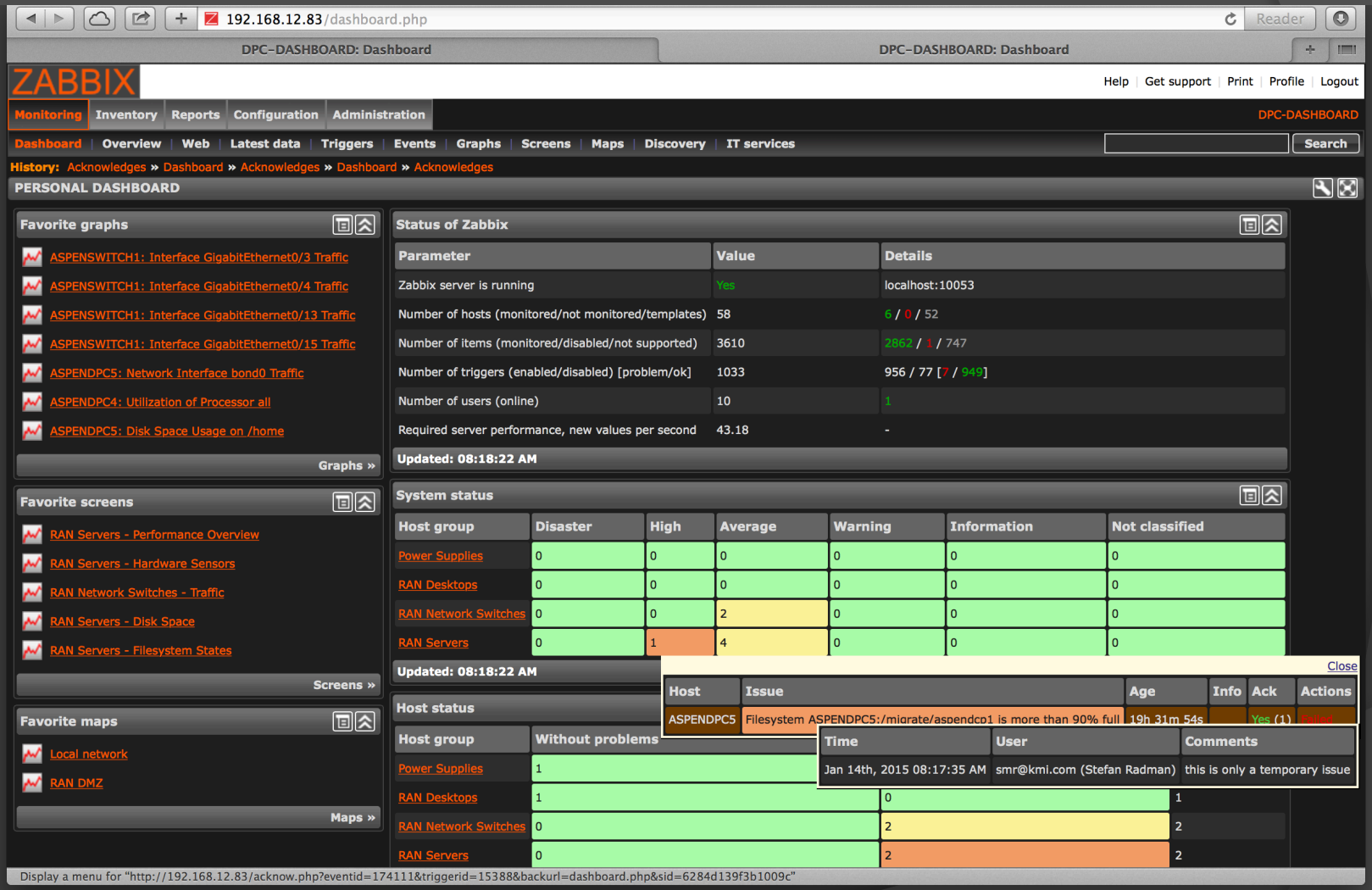
System Customizations - Dashboard



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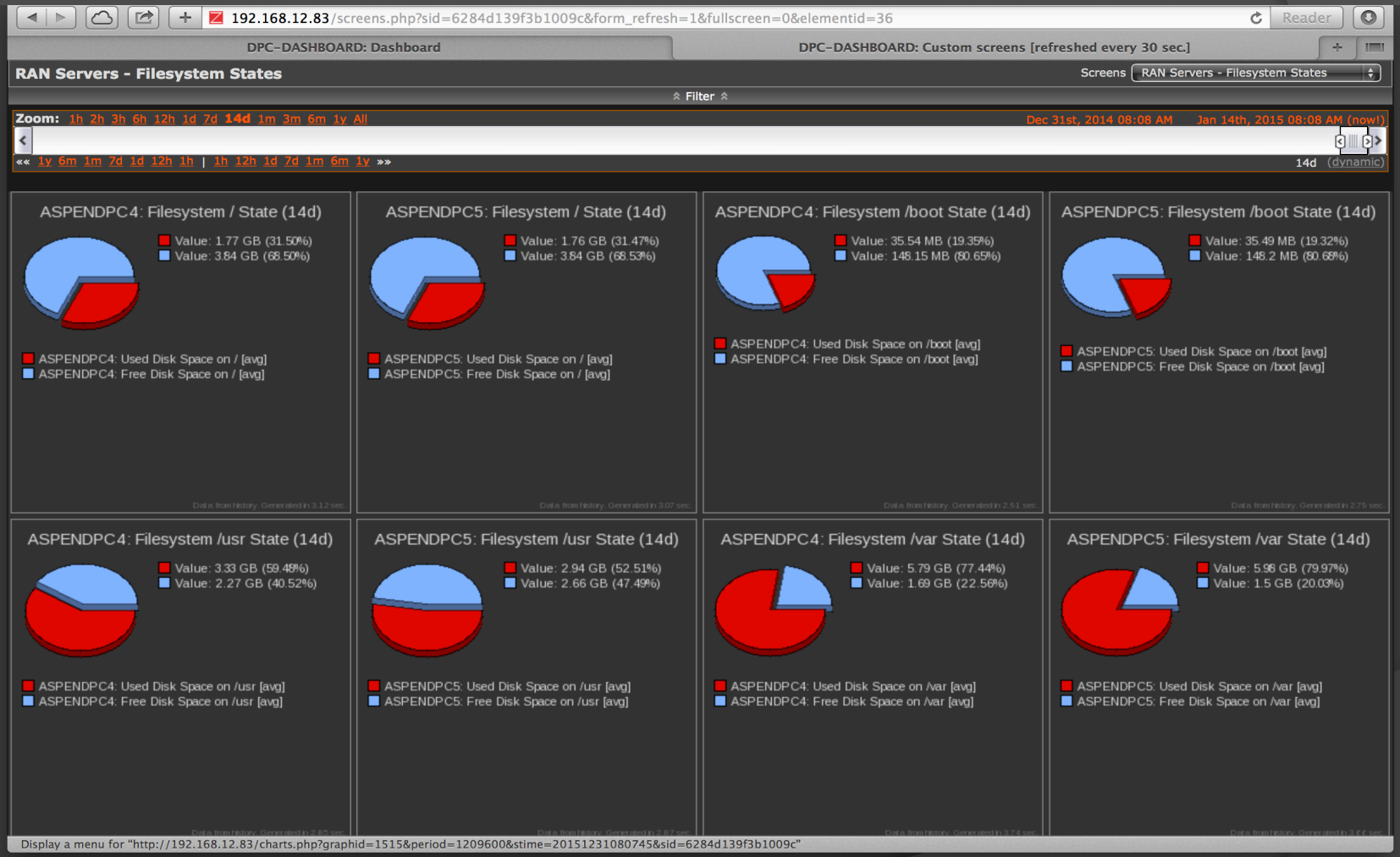
System Customizations – Filesystem



System Customizations – Performance

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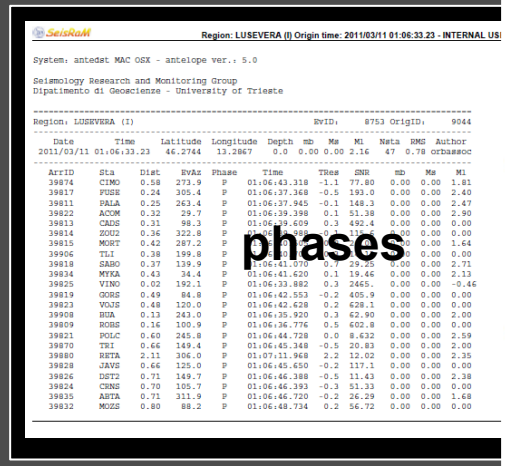
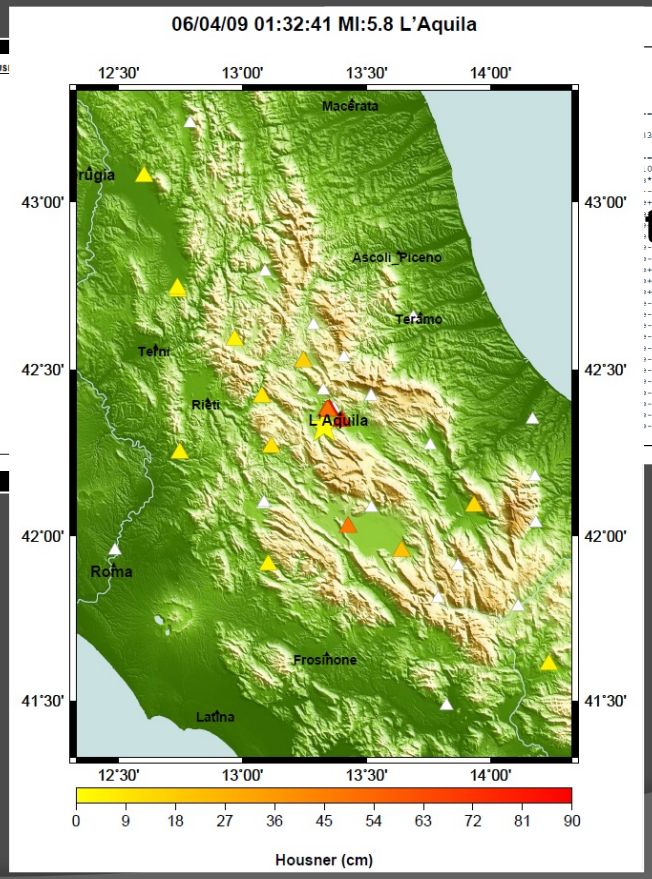
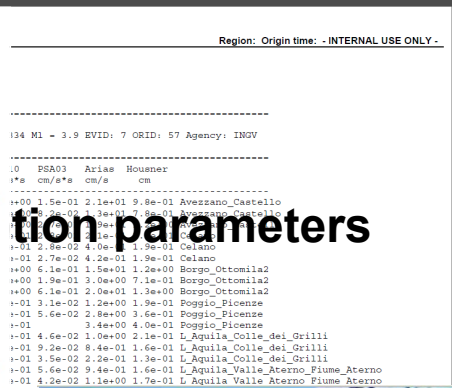
Client Customizations

- Civil Defense “fast-report”



phases





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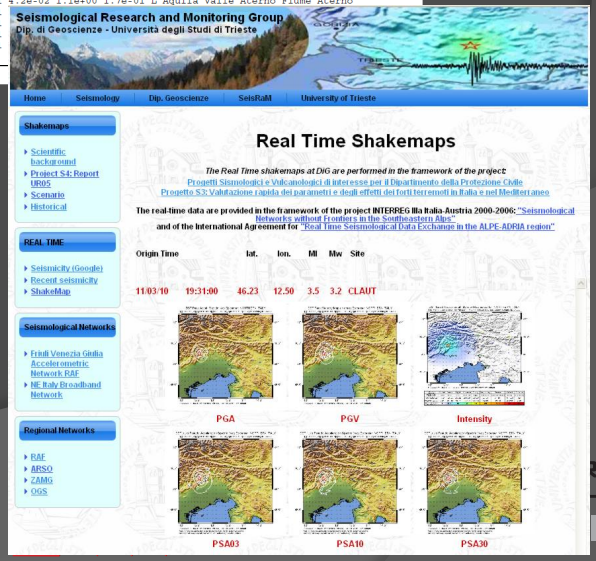
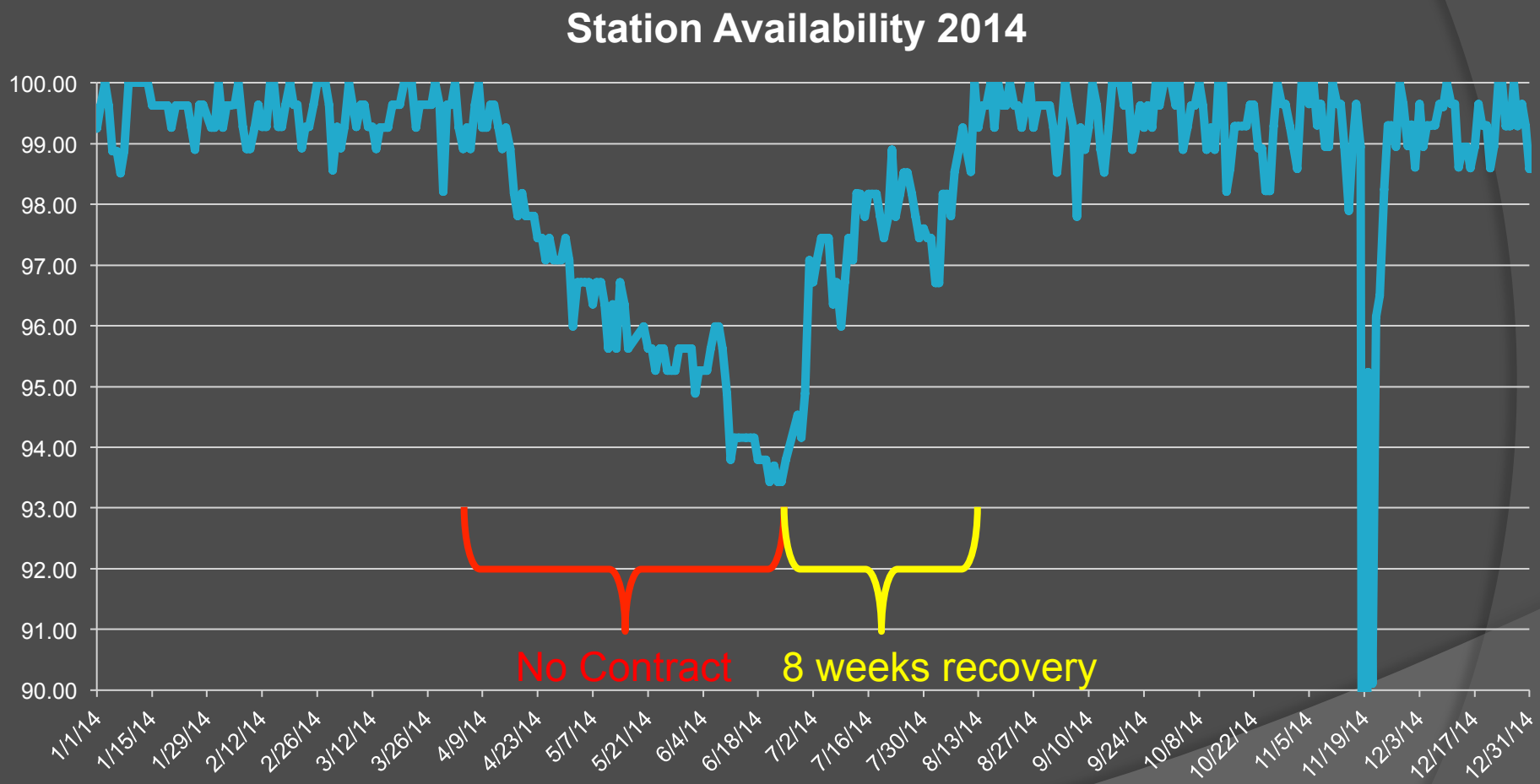
sms



Network Maintenance