WBA NUTS AND BOLTS 2022

FREE, CHEAP TOOLS FOR REMOTE MONITORING OF ANYTHING

A BIT OF HISTORY…

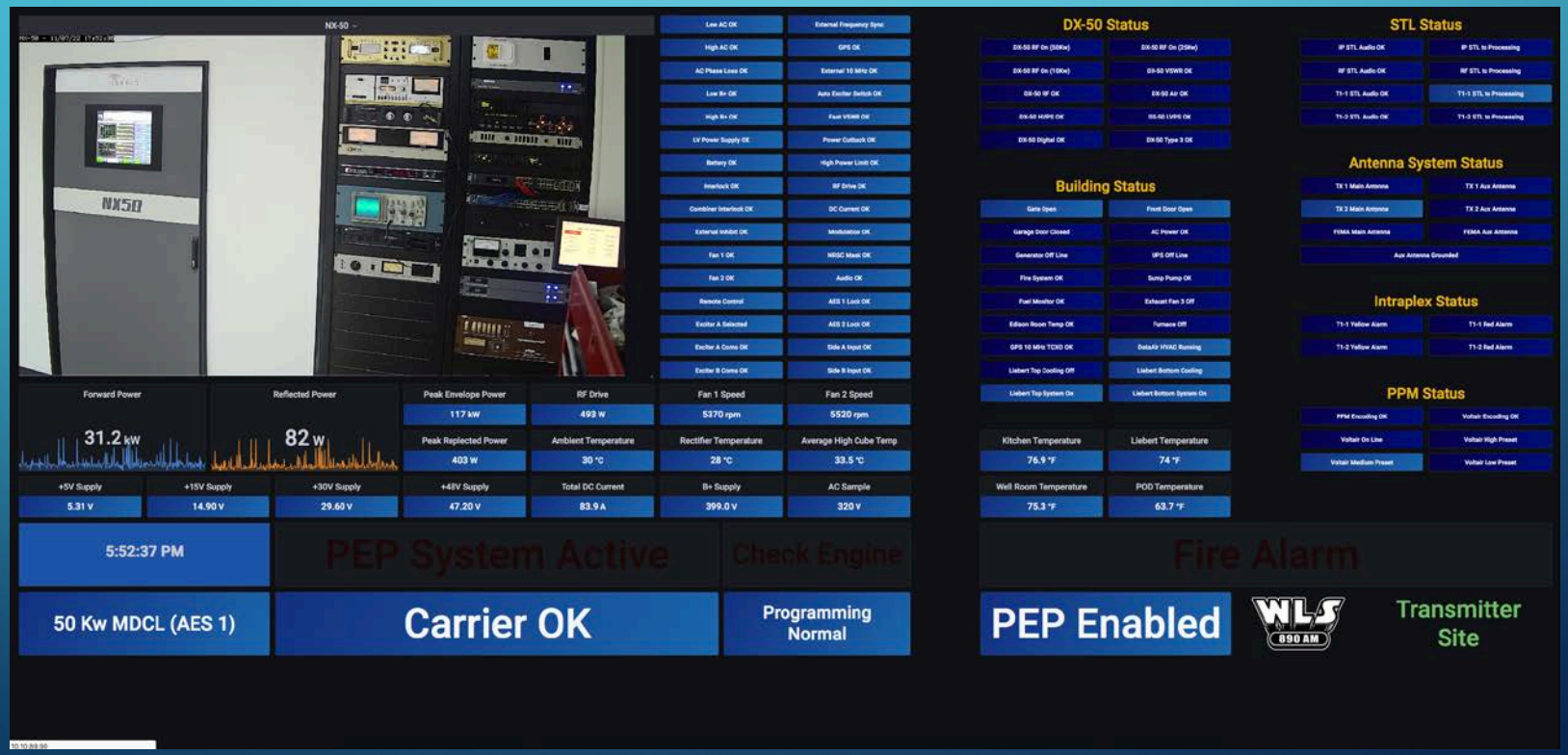
AND NOW…

WHAT HAS CHANGED?

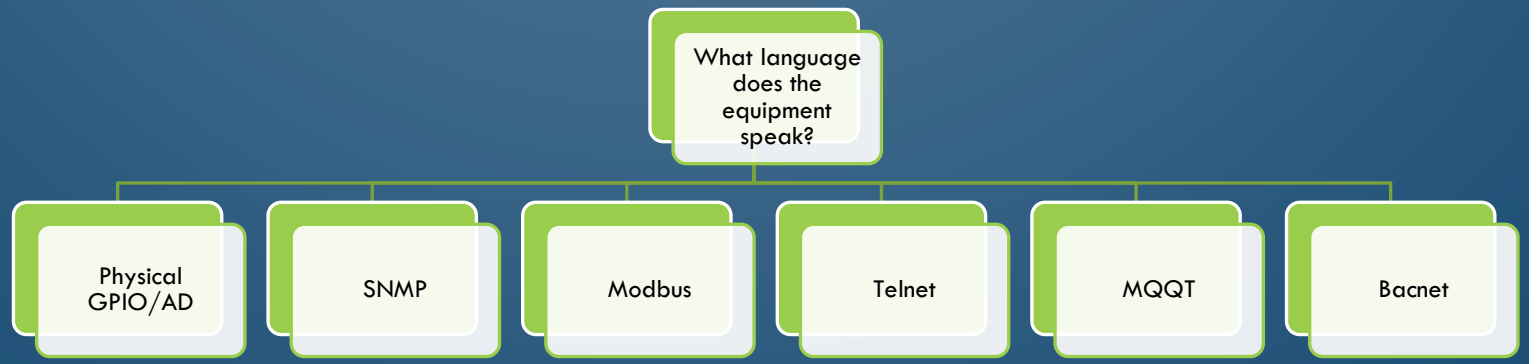
- Equipment is much more reliable than the good ole days
- One engineer for multiple stations, sometimes multiple cities
- Al Gore's most famous invention

So, Just how do you monitor multiple types of equipment that speak multiple languages, in multiple cities?

- Commercial products are starting to appear
- Many remote controls have web interfaces
  - Security concerns
- What if you don't have a big budget?
  - Have we got a show for you…



DESIGN PREREQUISITES



DESIGN DESIRES

MODULAR

OPEN SOURCE

RELIABLE

SECURE

WEB BASED UI

LOW COST

ONE SOLUTION TO THE PROBLEM

WARNING – This is a work in progress (aren't they all?)

Data Collectors

Icinga2
SNMP Collector
Node Red

Data Storage

InfluxDb

Data Display

Grafana

Data Collector Details (lifted directly from the WWW)

- Icinga2

  Icinga is a monitoring system which checks the availability of your network resources, notifies users of outages, and generates performance data for reporting
  Scalable and extensible, Icinga can monitor large, complex environments across multiple locations
  Icinga 2 is the monitoring server and requires Icinga Web 2 on top in your Icinga Stack. The configuration can be easily managed with either the Icinga Director, config management tools or plain text within the Icinga DSL

- SNMPCollector

  SnmpCollector is a full featured Generic SNMP data collector with Web Administration Interface Open Source tool which has as main goal simplify the configuration for getting data from any device which snmp protocol support and send resulting data to an influxdb backend.

- Node Red

  Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.
  It provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.

Data Storage Details

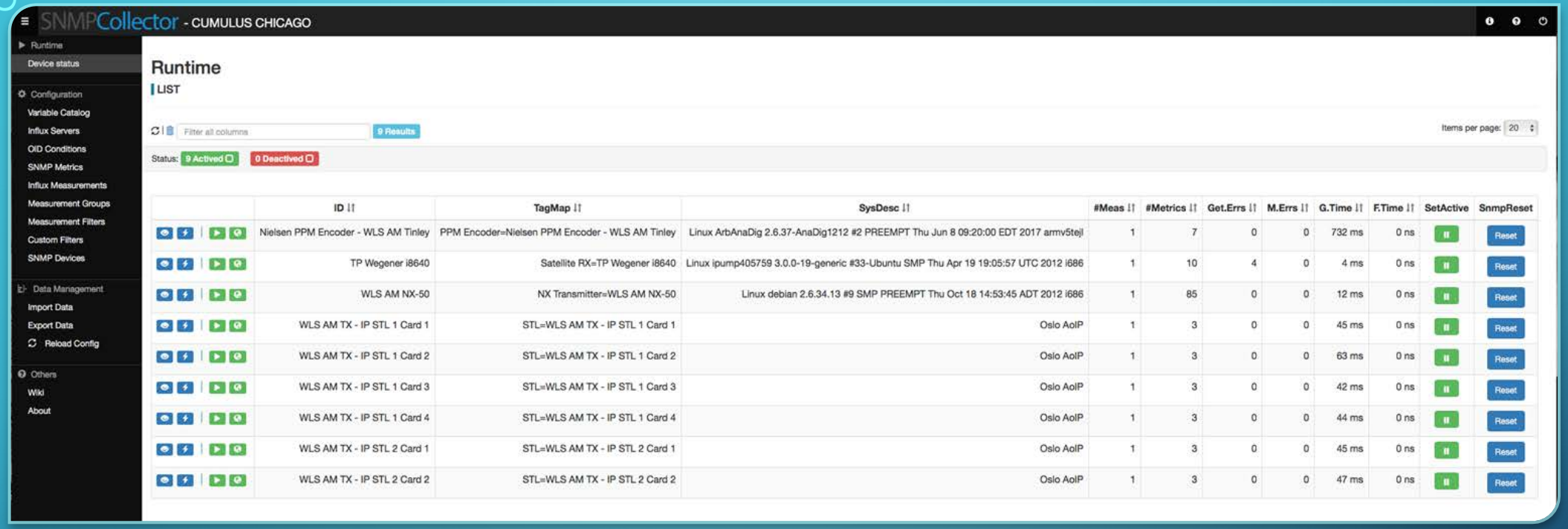
- InfluxDb

  InfluxDB is an open-source time series database developed by the company InfluxData. It is written in the Go programming language for storage and retrieval of time series data in fields such as operations monitoring, application metrics, events, logs, traces – from everywhere – systems, sensors, queues, databases and networks – and store in a high-performing engine capable of ingesting millions of data points per second.

Data Display Details

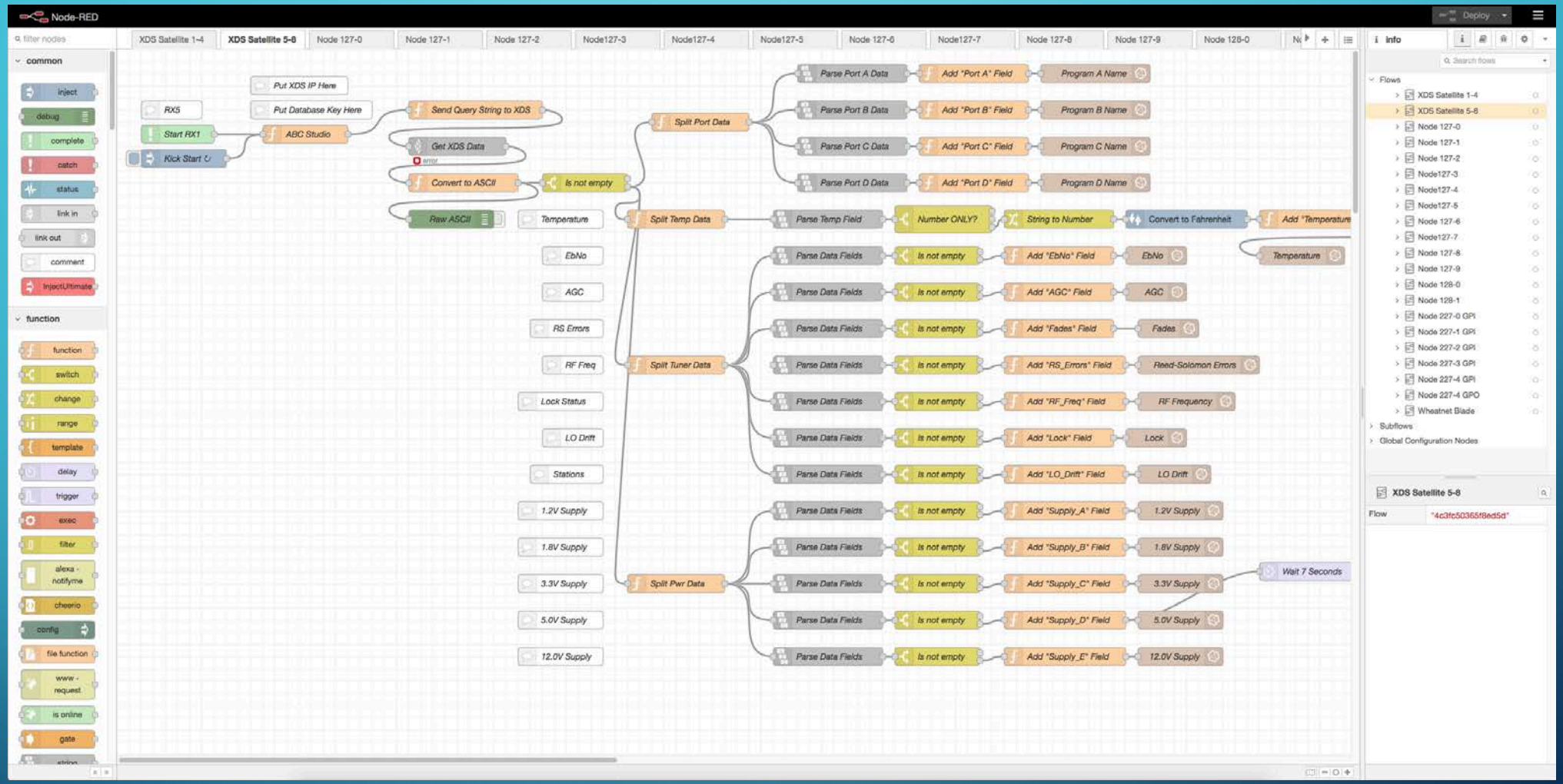
- Grafana

  Grafana is a multi-platform open-source analytics and interactive visualization web application. It provides charts, graphs, and alerts for the web when connected to supported data sources. It is expandable through a plug-in system. End users can create complex monitoring dashboards using interactive query builders



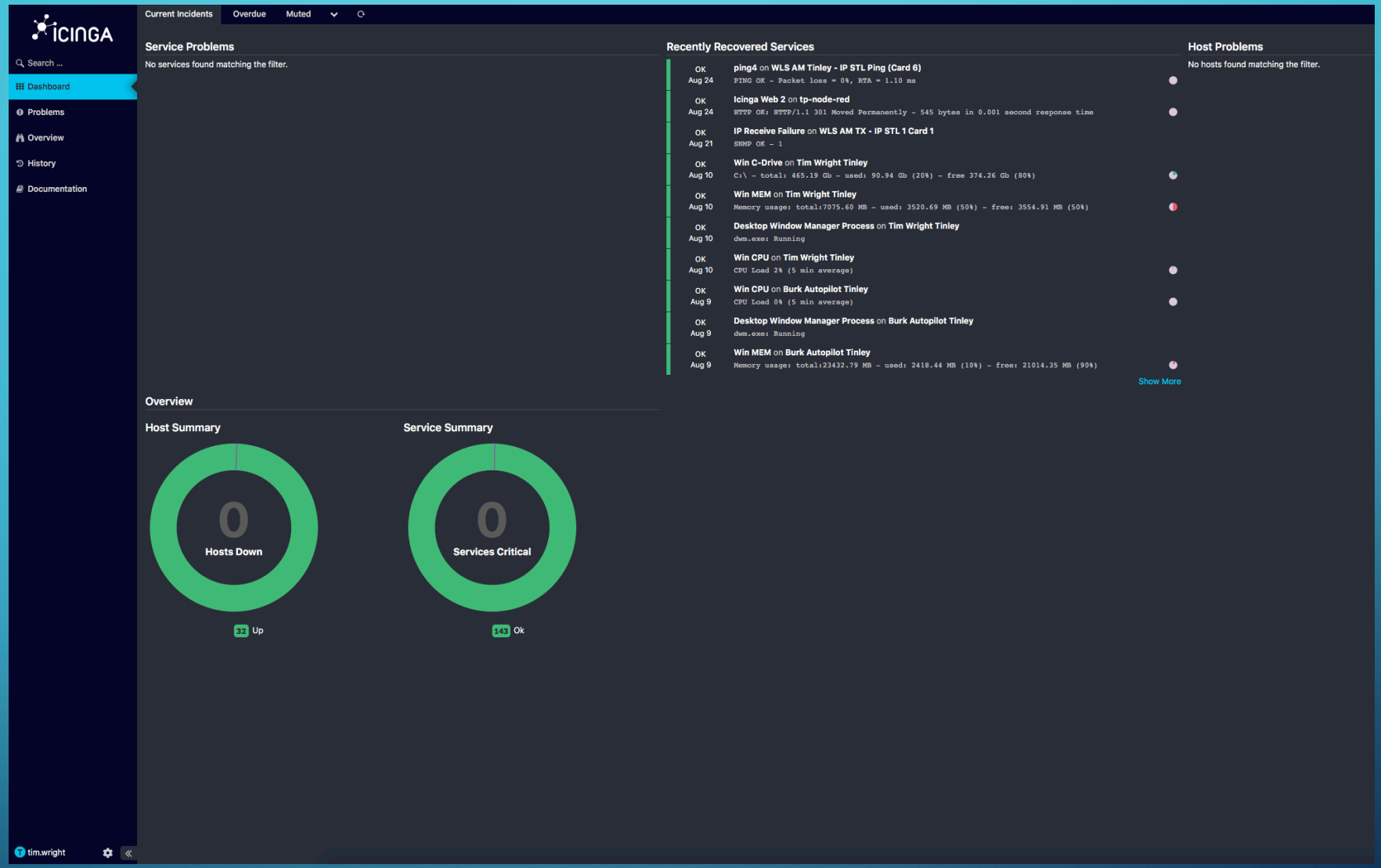
SNMPCOLLECTOR WEB INTERFACE

PORT 8090



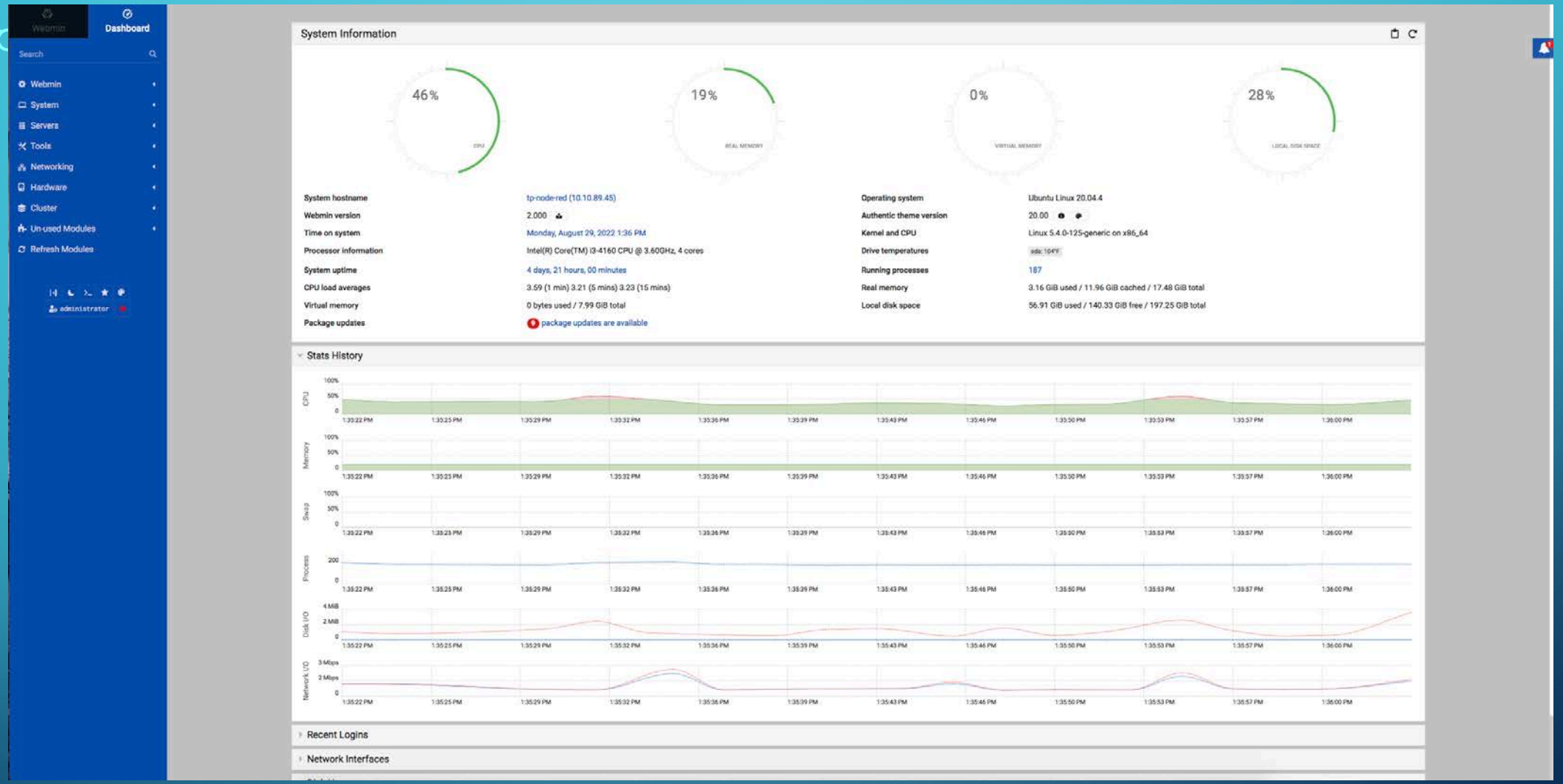
NODE-RED WEB INTERFACE

PORT 1880

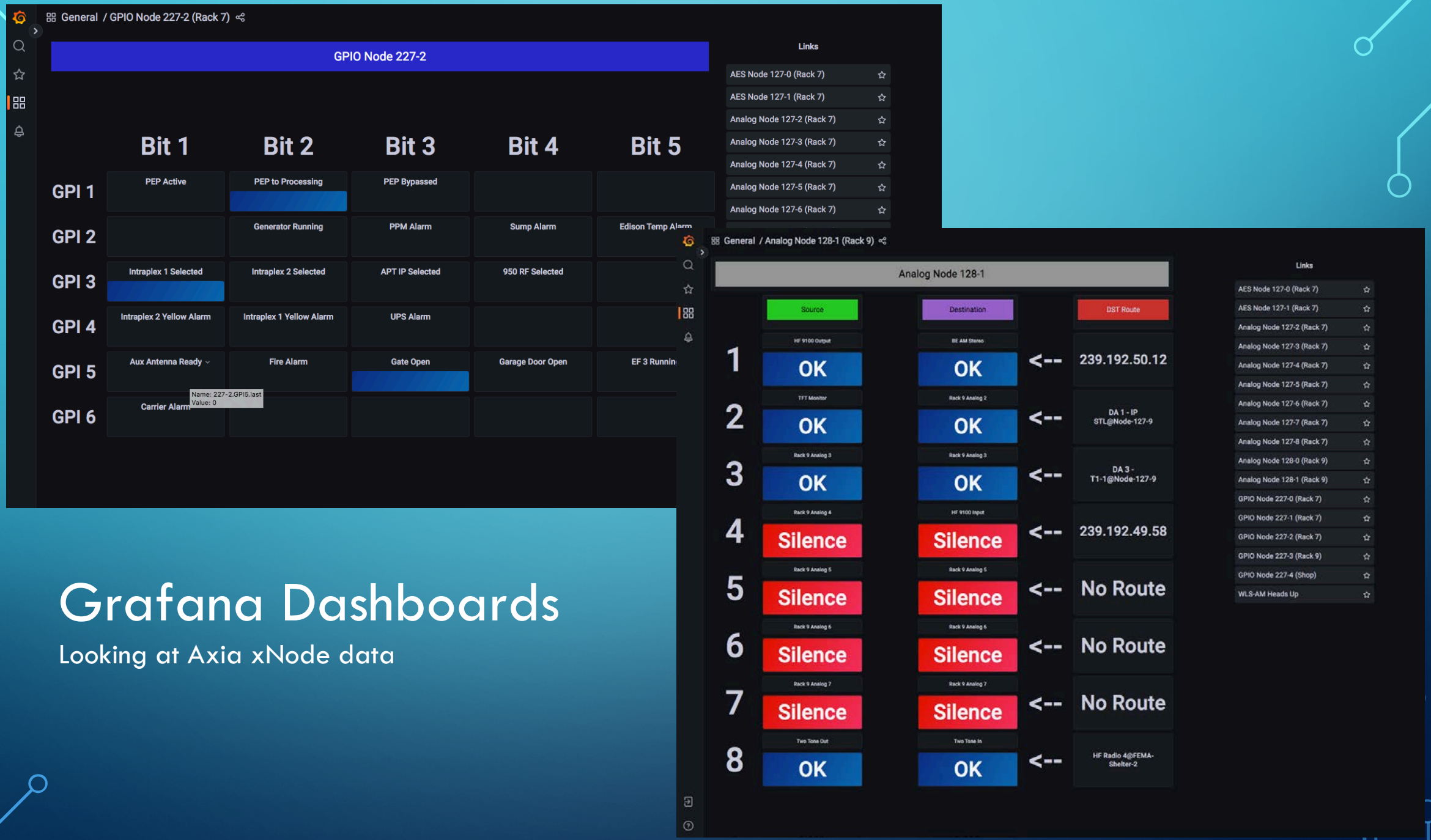


Icinga2 Web Interface

Port 80 addr/icingaweb2



Webmin Web Interface
https Port 10000



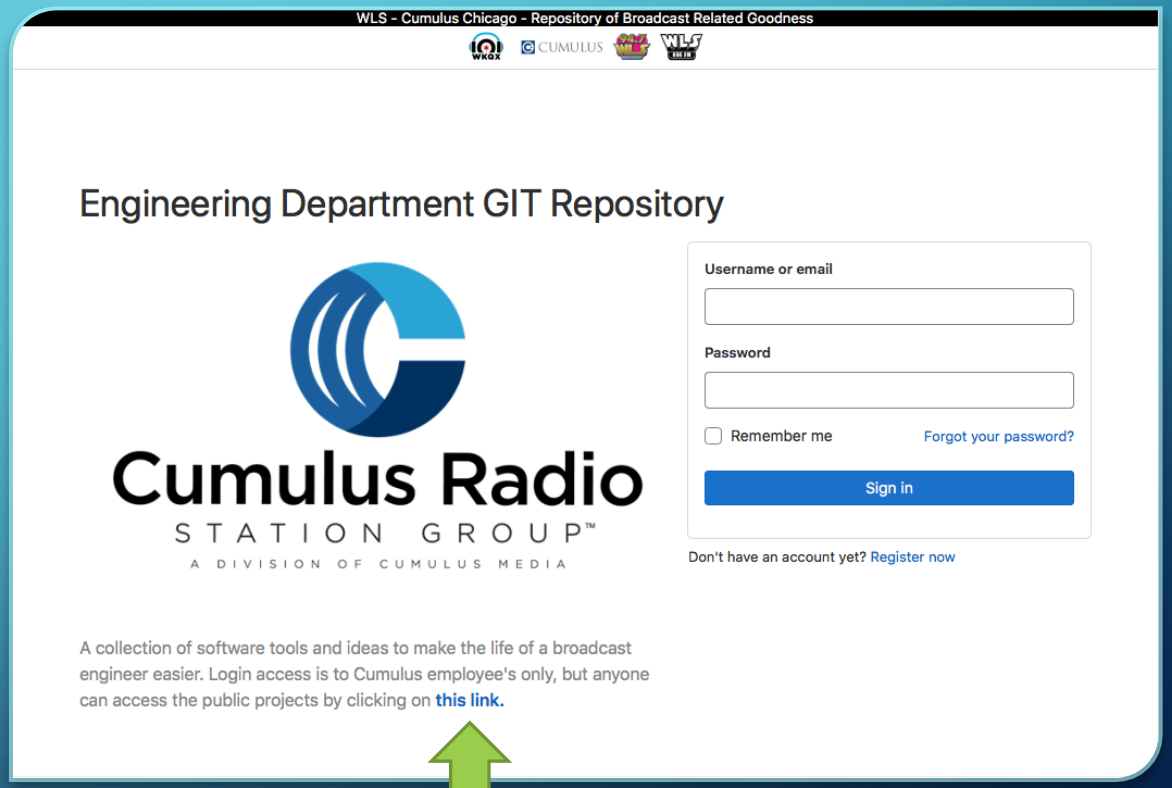
Grafana Dashboards

Looking at Axia xNode data

IT IS TIME TO GET OUR HANDS DIRTY AND PLAY WITH THE SOFTWARE…

Resource page for this project and more engineering goodness

http://wlsgit.dyndns.org



Click here to access the Public files

IP Address list for the hands-on demo

- **192.168.2.10** - Raspberry Pi audio switcher (xNode output 4)
- **192.168.2.100** - Laptop running 7 instances of VLC, Wheatnet Navigator, Livewire audio driver.
- **192.168.2.101** - Wheatstone IP-88a
- **192.168.2.102** - Axia Analog xNode
- **192.168.2.103** - Axia GPIO xNode
- **192.168.2.200** - Laptop running Data Ingress and Database
- **192.168.2.201** - Laptop running a local Grafana Instance
- **192.168.2.202** - Laptop running a local Grafana Instance
- **192.168.2.203** - Laptop running a local Grafana Instance

How is it all put together?