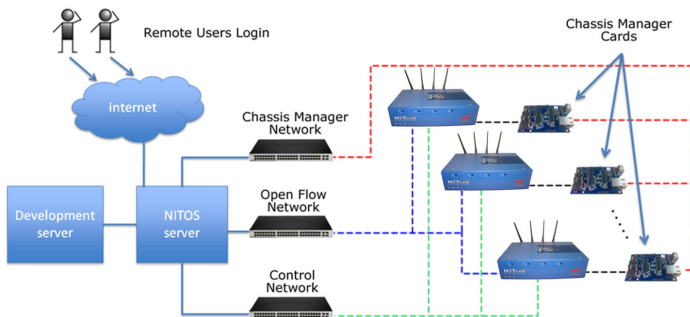


An Integrated Chassis Manager Card Platform featuring multiple Sensor modules

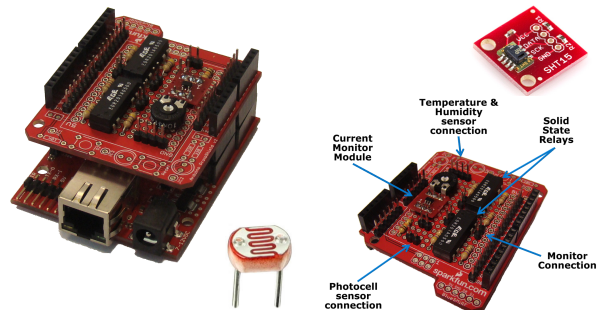
NITOS ARCHITECTURE

- ✓ NITOS is a large scale, remotely accessible wireless testbed.
- ✓ Remote administration of testbed resources requires custom-built hardware and software solutions.
- ✓ NITLab's solution consists of the newly developed custom CM card, which is deployed to each testbed node and controlled through an independent network.



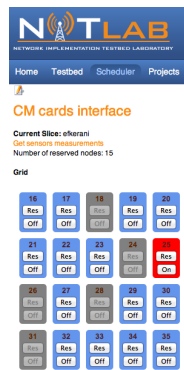
NITOS CHASSIS MANAGER CARDS

- ✓ Based on an **Arduino** compatible microcontroller board and features several extra modules:
 - Ethernet Network Interface
 - Solid state relays
 - Digital temperature / humidity sensors
 - Photo-conductive cells
 - Proper power consumption measurement setup

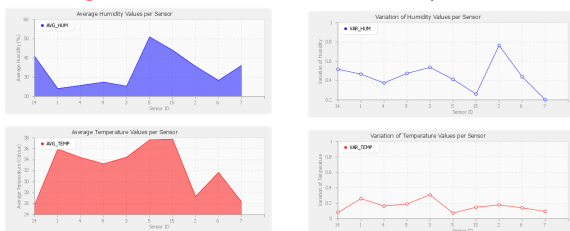


CHASSIS MANAGER WEB INTERFACE

- ✓ Monitor status of Testbed Nodes.
- ✓ Power **ON/OFF** and **RESET** specific nodes.
- ✓ Store gathered sensor measurements at NITOS Database, including:
 - Humidity
 - Temperature
 - Light
 - Power Consumption per node.



- ✓ Plot **Average** and **Variation** values for each experiment.



POWER CONSUMPTION MEASUREMENTS

- ✓ Modify a cable raiser to have direct access to the card's power supply pins and attach a **0.1 Ω Resistor** in series with the pins.
- ✓ Measure the voltage on the resistor, which is multiplied by an **INA139** current shunt monitor circuit to increase the voltage output gain and the obtained accuracy.
- ✓ Accuracy: **8930** samples of **10-bit** level gathered per second!
- ✓ Monitor specific events and measure energy consumption levels!

