



GARR

The Italian Academic & Research Network

www.garr.it

Environment monitoring @ GARR

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Why

- ▶ Monitor and manage server room environmental conditions over IP
- ▶ Provides early warnings before critical events turn into disaster
- ▶ Preventing costly downtime caused by environment condition ensuring uptime and system reliability

What can be monitored?

- ▶ Sensor devices for monitoring environmental variation:
 - Temperature
 - Humidity
 - Thermocouple
 - Water Sensor
 - Security Sensor
 - AC Voltage Detector
 - Digital Voltmeter
 - Airflow Sensor
 - Smoke Detector
 - Motion Detector

Which products?

- ▶ Poor market
- ▶ Need European guarantee (lots of products are only sold in USA)
- ▶ Price is an important aspect

- At the end we focused on:
 - APC NetBotz (420/500)
 - AKPC SensorProbe

▶ <http://www.akcpinc.com/>

- Bangkok - Research & Development Center
- Honduras - Manufacturing and Distribution Center

Official Reseller In Italy (coretech.it, Milan)

- **SensorProbe2** (2 probes)
- **SensorProbe8** (8 probes)
- **SecurityProbe** (8 probes and many other features)

SensorProbe2



- ▶ Support lots of different sensors (see slide n.3)
- ▶ We have installed 2 SensorProbe device at GARR:
 - Star node 4th floor
 - Laboratory 4th floor

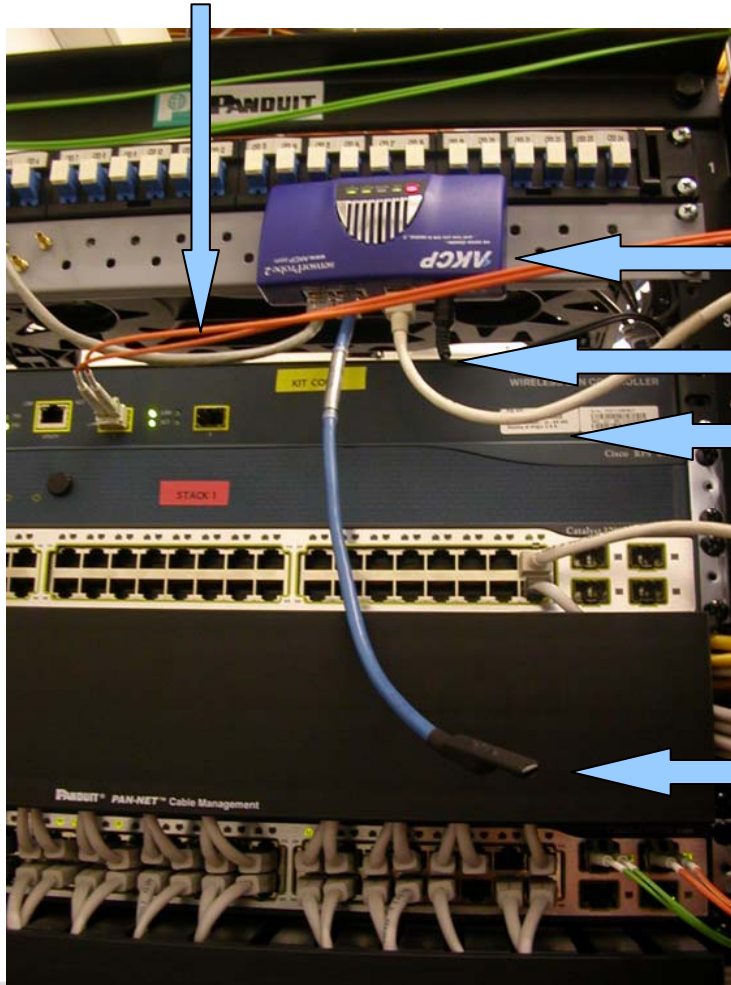


- with the following sensors:
- 1 combined Temperature/Humidity Sensor
- 1 Smoke Sensor

- **Prices: 330€/device + ~100€ each sensor**

SensorProbe2 @ GARR

Smoke probe cable



Device

Power supply

Ethernet cable

Temperature/Humidity probe

SecurityProbe

▶ Linux Box

- » user # `uname -a`
- » Linux `sprobe 2.6.21 #2 Thu Nov 8 15:51:06 ICT 2007 armv5tel unknown`

- ▶ 8 ports available. We have installed at GARR:
 - 3 combined Temperature, Humidity Sensors
 - 1 Smoke Sensor
 - 1 Airflow Sensor
 - 1 Sound Detector(default)
 - CAM 3CCD (not included)
 - Price 1250€/device
 - ~100€ each sensor



SecurityProbe @ GARR CED



Smoke sensor

SecurityProbe device

Monitoring

- ▶ All the products support
 - Web Interface access
 - Plot graphs (RRD or Javascript)
 - **SNMP v1, v2 (SensorProbe)**
 - **SNMP v1, v2, v3 encryption (SecurityProbe)**

Alarm & Trigger

▶ SensorProbe

- Mail
- TRAP

▶ SecurityProbe

- MAIL
- TRAP
- Skype
- Ability to connect external GPRS/GSM modem, Bluetooth and WiFi USB adapters.

MAIL Example

- from: probelab@garr.it
- to: system.support
 - 20/05/09 10:56:17
 - Humidity on RJ45#1 Is now 65 % (High Warning)

- ▶ Through SNMP polling, we have realized a customized page to have a quick view of the whole system:
 - <http://mon.dir.garr.it/sensors>
 - » Credits: Stefano Gargiulo (Ajax web page), Carlo Volpe (Logo)
- ▶ Each device is reachable at the following address:
 - probelab.mng.dir.garr.it
 - probestar.mng.dir.garr.it
 - probeced.mng.dir.garr.it