



NETWORK CONTROL CENTER

THE NETWORK
CONTROL CENTER
IS STAFFED

24/7/365

The RACOM Network Control Center (NCC) is a secure network monitoring facility located on the 3rd floor of RACOM's headquarters in Marshalltown, IA. The NCC is built to withstand 150 mile per hour winds, and has back-up electrical generation with enough fuel on-site to last for 8 days.

Communications to the NCC is provided by (3) independent fiber carriers plus the State of Iowa Communications Network (ICN). RACOM is the only private company in Iowa to have access to the State of Iowa's secure network

Network Control Center

Hours of Operation



The NCC is staffed 24x7x365 and is responsible for proactive monitoring of Critical Communications Networks. When required, a Technical Operations person will be dispatched from one of RACOM's 11 Service Centers throughout the Midwest.



Network Control Center

Performance Monitors

NCC utilizes a variety of tools to monitor the performance and health of your network, including vendor neutral monitoring software such as Solar Winds which monitors Simple Network Protocol (SNMP) and Vendor specific software when applicable.

Examples of various performance heuristics that are anticipated to be monitored are:

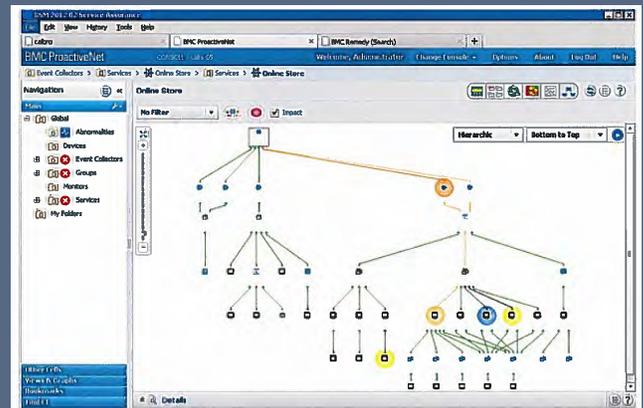
- Monitoring of Base Station Operations
- Monitoring of system for RF interference
- Monitoring of DS-1 bandwidth utilization on the protected microwave loop
- Monitoring of protected microwave loop signal received signal levels

Network Control Center Alarms



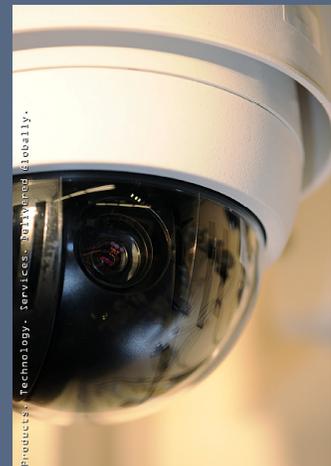
The NCC is responsible for accepting and responding to all alarm conditions generated by the various monitored equipment. Standard alarms that are typically monitored for radio systems include:

- Door Alarms
- AC Power Fail Alarms
- Low UPS Battery Alarms
- Generator Run Alarms
- Temperature High/Low Alarms
- Power Amplifier (PA) Failure
- Station Synthesizer Alarms
- Microwave Alarms (loss of RF signal, etc.)



In addition to Standard items, any other item accessible over the IP backbone may be monitored. Some examples include:

- UPS Line Voltage
- Output Voltage
- Estimated Run Time Remaining
- Battery Percentage Remaining
- Smoke Detectors
- IP Security Cameras at the sites
- Compound Fence/Gate Open
- Motion Detectors





Network Control Center

Response

Standard Operating Procedures

Once a potential fault has been identified (either by proactive monitoring or by a customer call-in), the NCC operators will use Standard Operating Procedures (SOPs) augmented by their own experience and training to allocate the appropriate resources.

RACOM has several SOPs in place for our own radio system and these will be used as a base to be modified, with customer input, to suit the specific needs of the proposed system. In the event of an issue identified by proactive monitoring, NCC will contact the customer to alert them to potential fault. RACOM has two types of specialized after-hour support available.

- 1.** Service Center On-Call Technician. This individual is typically always notified upon identification of a potential fault. They will work with NCC and the customer to identify the severity and details of the fault and then provide the necessary on-scene support to resolve the issue.
- 2.** Engineering Staff. Should the incident require the involvement of the engineering staff, an on-call Engineer will be contacted to work with the service center on-call technician and the customer to provide prompt resolution of the fault.

Network Control Center

Notification Procedures



Radio Sites that RACOM Network Control Center (NCC) monitors and which have a fault, are put into a Site Incident Database. Each time a particular site has a fault, a new incident is opened and monitored to resolution with one of the following colors denoting a severity and cause:

- Code RED: The site is isolated from the rest of the network
- Code YELLOW: A warning state that there is a minor issue occurring
- Code BLUE: Commercial power has been lost and the site is running on UPS or Generator
- Code BLACK: Commercial power has been lost and the site is off the air
- Code BROWN: A data or switching issue is occurring

Each of these states can trigger an email: send a text message to a pager, or a cell phone of the appropriate individual.



The information provided may include the time of incidence, location of fault and preliminary diagnostics, dramatically improving response time.

Customer References



RACOM's Network Control Center currently monitors over 40 critical communication systems ranging from 911 Call Taking, uWave, Routers, Dispatch Consoles, Paging Networks, Simulcast Radio Systems, Surveillance Networks and Physical Plant Systems

Some of Our Clients Include:

- Burnett County - WI
- East River Electric Coop, Madison, SD
- City of Dubuque - Dubuque, IA
- Iowa State University - Ames, IA
- Johnson County - Iowa
- Linn County - Iowa
- Polk County - Iowa
- Waupaca County - WI
- Lake County - SD
- City and County of Eau Claire, WI

