Easily Connect, Control, Manage, and Monitor All of Your Devices with Nivis Cloud NOC

As wireless standards develop and IPv6 gains widespread adoption, more and more developers are creating smart devices to perform a huge variety of tasks across a wide spectrum of industries. But with this ever-increasing number of devices comes questions about integration and management:

- How can we connect these smart devices in a usable way without huge expenses for infrastructure and deployment?
- How can we make devices work together and manage them all at once?
- How can we easily integrate devices with applications to make them useful?

The **Cloud Network Operations Center (NOC)**, a core component of the **Nivis Smart Object Platform**, is a web-based management tool that leverages cloud-computing technologies to provide a simple yet powerful interface to support Smart Objects in highly scalable wireless mesh networks. With Cloud NOC, you can easily connect, control, manage, and monitor all of your Smart Objects devices in applications such as utility monitoring, home and office automation, environmental monitoring, healthcare, and many more.

Cloud NOC offers easy integration with Smart Objects devices, remote network management, secure data transport and storage, data visualization, and export capability. Web services facilitate integration with external systems, simplifying the development of applications using device data.

Cloud NOC provides a robust platform for the “Internet of Things,” enabling the deployment of applications in hosted or cloud (private or public) environments that automatically scale to meet any demand, from the first prototype to field pilot tests and production systems.

In conjunction with Cloud NOC, Nivis' field-proven Smart Object IPv6 technologies are fundamental building blocks for the Internet of Things:

- **Radio Module**: Nivis offers a low-power, IP-enabled, sub-gigahertz time-synchronized channel-hopping module that is RF certified worldwide. This module is ideal for lighting control, HVAC control, alarm systems, and other automation applications.
- **Edge Routers**: Edge Routers act as gateways between wireless devices running the Smart Object stack, the Internet backbone, and users such as utility companies or city managers.
- **Smart Object Stack**: Nivis devices use a standards-based, highly scalable, end-to-end secured, IPv6 wireless communication stack.
- **Cloud NOC**: Nivis' cloud-based management software is the platform for our Internet of Things solutions.

All of our end-user products are also available as OEM products and reference designs to enable the broadest possible application of Smart Object technology.

What are the primary benefits of Nivis Cloud NOC?

Cloud NOC makes it easy to connect, control, manage, and monitor all of your Smart Objects devices.

Simple, Flexible Development and Management

Cloud NOC provides the core functionality needed to manage devices and visualize/export data. Just turn on devices and the system will take care of the rest. Management tasks can be completed easily across large numbers of devices through a web-based dashboard, saving time and money.

Pricing is also flexible; you can start with a free account that has everything you need to connect to Smart Objects devices in real time, and upgrade to a more powerful business account only when needed.

Easy Deployment

Nivis NOC simplifies integration by making it easy to connect and deploy any Smart Objects device:

- Register for a free account to gain access to API documentation and samples to help you begin your deployment.
- Cloud hosting options eliminate the need for costly and complex IT infrastructure.
- Our Data Export Interface provides a convenient way to extract the data you need from Cloud NOC in the format you need (XML or JSON) using simple HTTPS requests.
- Web services include Constrained Application Protocol (CoAP), Embedded Web, and REST API.

End-to-End Security

Security is a key component of Cloud NOC. The entire platform was designed with security in mind to ensure the integrity of your solution.

Scalability

Cloud NOC is designed for seamless scalability. Devices can be deployed in a variety of scenarios, from hosted server to private/public cloud.

What features are available in Nivis Cloud NOC?

Cloud NOC provides a robust set of features that make it easy to manage your Smart Objects network, including:

Dashboard – Access all of your tools via one web-based interface

- Access the many tools and functions that the Cloud NOC has to offer.

Wireless Sensor Networks Management – Administer wireless Smart Objects

- Register networks, set access and security, adjust network configurations, view statistics, check network status, and view network details.

Device Management – View and control your devices in real time

- Manage devices remotely, check devices status, view device information and resources, reset to factory default, ping, print, or export functionality, view device data with filtering, access device statistics, manage device's data publishing configuration, read data on-demand from device resources, view statistics on device communication.

Network Visualization – Gain insight into your network

- View geographical and logical device maps.
- Retrace network formation, view device and network information.

Security – Protect the integrity of your network

- Establish Virtual Private Networks (VPN).
- Use end-to-end security based on DTLS1.2, hop-by-hop link layer security based on AES-128, and backhaul security based on SSL/TLS1.2.
- Network admission based on PANA/EAP/TLS
- Support to use security certificates for application flow (DTLS 1.2)
- Configurable cipher strength

Tools – Manage your devices remotely

- Implement remote firmware updates for endpoints and edge routers (point-to-point, broadcast) – just select the firmware and the system does the rest.
- Import whitelists of devices allowed to register in the system.

Data Export – Find out what your devices are telling you

- Access user data via an easy, secure, and authenticated web service interface.
- After authentication, view and extract (in XML or JSON format) user-specific information such as network lists and statistics, device lists and statistics, and sensor data.

Account Management – Control who can access your data

- Apply user access rules based on roles.
- View account details, manage users, view billing information, track logging information, and manage your subscription. Power users can manage other user accounts to define privileges and visibility.

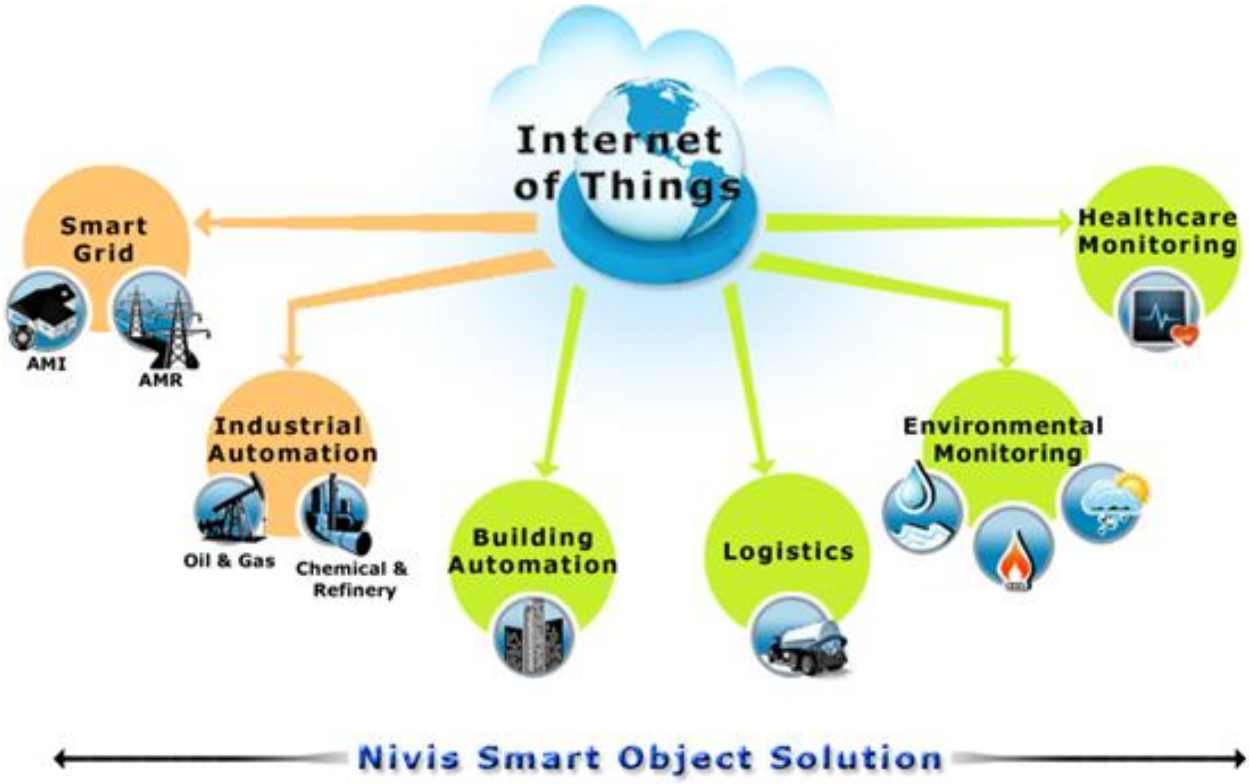
Settings – Configure your interface to fit your needs

- View or change general settings such as UI skin, language, or time zone.
- Export data (in XML or JSON format), generate new tokens, view data export history.

What are some possible uses for Nivis Cloud NOC?

As budgets tighten and demands grow, smarter solutions must be developed in order to conserve energy, protect the environment, and improve operational efficiencies.

Nivis Smart Object applications include smart grid, home and building automation, lighting control, and smart cities, enabling our customers to save on operational costs, better manage their energy usage, protect the environment, and future-proof their assets for the Internet of Things.



Smart Grid

Nivis is a leader in wireless communication solutions for electricity, gas, and water metering, as well as energy monitoring, for utilities and vendors of metering equipment. Since 1998, Nivis has been helping customers overcome operational and consumer-driven challenges by developing wireless mesh network technologies suited for large and very large deployments of automated meter reading (AMR) end points.

Nivis' Smart Object solution brings IPv6 and end-to-end security all the way to the meter, enabling utilities to develop a Secured Smart Grid. We also offer consulting and engineering services to help design solutions that are customized for specific applications.

Home and Building Automation

Building Automation Systems (BAS) and Building Management Systems (BMS) are networks of hardware and software that monitor and control the environment in commercial, industrial, and residential facilities with the purpose of ensuring the operational performance of the facility and the safety and comfort of its occupants.

With the Internet of Things revolution, there is growing pressure on BAS/BMS vendors to move from proprietary systems to open IP-based systems that are interoperable, interconnected, flexible, and more secure.

To assist in this transition, Nivis offers a complete wireless communication solution for BAS/BMS applications that incorporates standards-based IP technology and strong end-to-end security. Our Smart Object Home and Building Automation solution is flexible, reliable, scalable, and field-proven and enables significantly greater control and access to data than any other system of its kind.

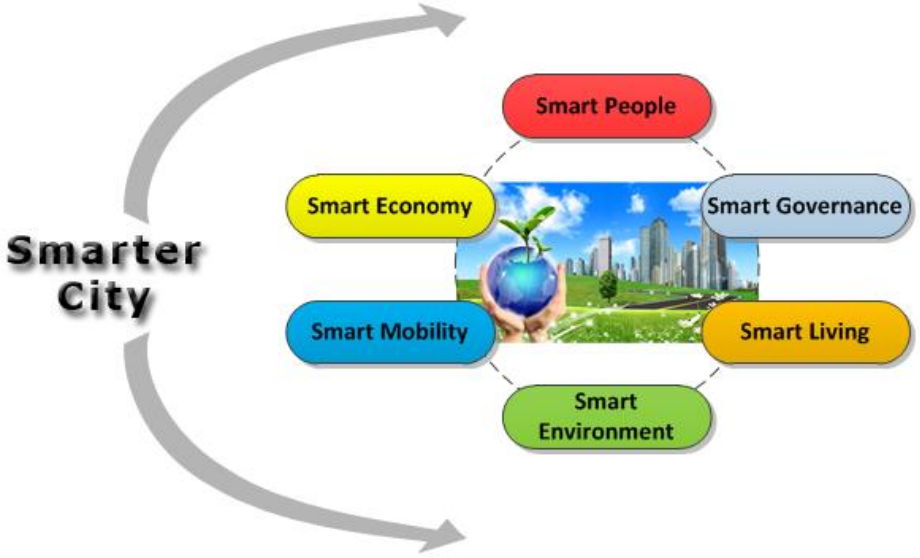
Lighting Control

Nivis' Smart Object solution provides a simple way for a city, utility, or business to control lighting. Users can easily schedule when lights should turn on and off and also set dimming levels for groups of lights or individual devices to provide the desired level of lighting based on time, date, location, and weather conditions. Advanced fixture diagnostics enable preventive maintenance, saving costs and eliminating downtime.

Our solution offers support for indoor, outdoor, commercial, and industrial lighting. And with Cloud NOC, control can easily be extended to other applications such as environmental monitoring and smart meters. Our field-proven technology offers increased energy and operational efficiency, enabling an average 40% cost reduction.

Smart Cities

A 'smart city' is a city built to address characteristics that contribute to the more efficient operation of the city. Six aspects that are usually considered in the discussion of smart cities include people, governance, living, environment, mobility, and economy.



We can't make people smarter, but with our Smart Object technology interconnecting electric meters, water meters, and gas meters, combined with intelligent wireless building and lighting control, we can now offer a clearer path towards a smarter and more efficient city.

Nivis' Smart Object solution is designed for operational and energy efficiency through remote management and interoperability. With our Cloud NOC platform managing interconnected devices and systems, city managers and citizens gain the tools needed to drive sustainable economic growth and improved quality of life.