



Public Safety Solution

Management Summary & Technical Overview

Version 1



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Management Summary

The problem was simple—Nlets, a national public safety service provider, needed to upgrade its communication technology to facilitate a Disaster Recovery plan; yet State Agencies, the users of the service, had bigger and more pressing issues at the time. The solution was for Nlets to provide the State Agencies with a conversion utility that converted from the State Agency communication technology to the Nlets-supported communication technology. This project was to develop such a utility.

Backstory

- The International Justice and Public Safety Network (Nlets) links together and supports every state, local, and federal law enforcement, justice and public safety agency for the purposes of sharing and exchanging critical information.
- The Nlets organization has existed for 45 years. As technology has changed, newer, faster communication interfaces have been added to Nlets. The state agencies have not been as quick to adopt these new communication interfaces.
- To support current day disaster recovery plans that entail seamless fail over from the primary site to the backup site, older communication interfaces have been deprecated.
- To ensure that Nlets Disaster Recovery Plans are not hindered by States utilizing deprecated communication technologies, Nlets would need to provide the States access to technology that would convert the deprecated communication interface to the newer communication technology.
- This conversion technology was envisioned to run at the State sites.

Business Objective

- Facilitate the new Nlets Disaster Recovery and Business Continuity initiative by providing the States with communication conversion technologies that convert legacy Nlets communication protocols to modern day communication protocols

Functional Requirements

- Convert the deprecated Nlets sockets protocol to the Nlets Web Services protocol
- Provide seamless plug-in of conversion technology into the State network
- Be able to run conversion technology both in a physical server and in a virtual machine (VM) environment
- Allow States to determine the level of redundancy of the conversion technology
- Monitor the conversion technology's operation via the Nlets Operation Center

Technical Requirements

- Conversion technology runs in a Windows® 2008 R2 environment
- Any required hardware is off-the-shelf

Outcome

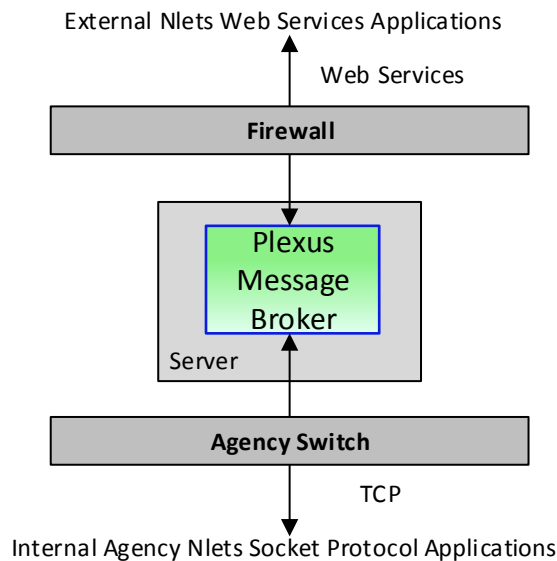
A Plexus Message Broker was enhanced to communicate to Nlets via the Nlets Web Services communication protocol and to the State Switch via the Nlets sockets communication protocol. States can employ various levels of redundancy via either physical servers or virtual environments.

Technical Overview

This Plexus Message Broker solution features the following technology: legacy protocols, message format translation, and Web Services. This solution's site and Plexus Message Broker configurations touch on these features below.

Site Configuration

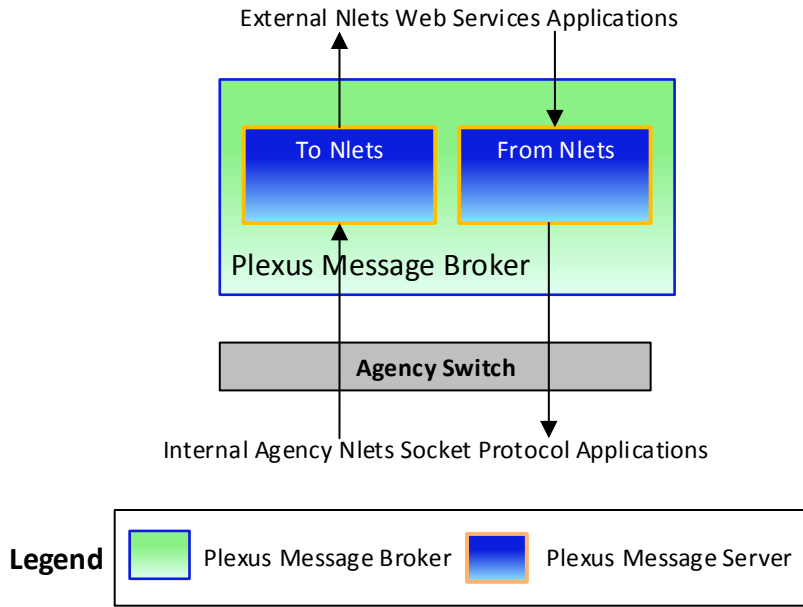
As illustrated below, this site has a single physical server that contains a single instance of the Plexus Message Broker. The site maintains a hot standby of the physical server.



As with all Plexus Message Broker installations, adding physical servers, increasing Plexus Message Brokers instances per physical server, or transitioning to run the Plexus Message Broker in a virtual machine (VM) environment is only a matter of installation and configuration. No other Plexus Message Broker modifications are necessary. Resources are typically added for performance reasons, local redundancy reasons, or both.

Plexus Message Broker Configuration

As illustrated below, this site maintains a single physical server that contains a single instance of the Plexus Message Broker. The Plexus Message Broker consists of a Request (To Nlets) Message Server and a Response (From Nlets) Message Server.

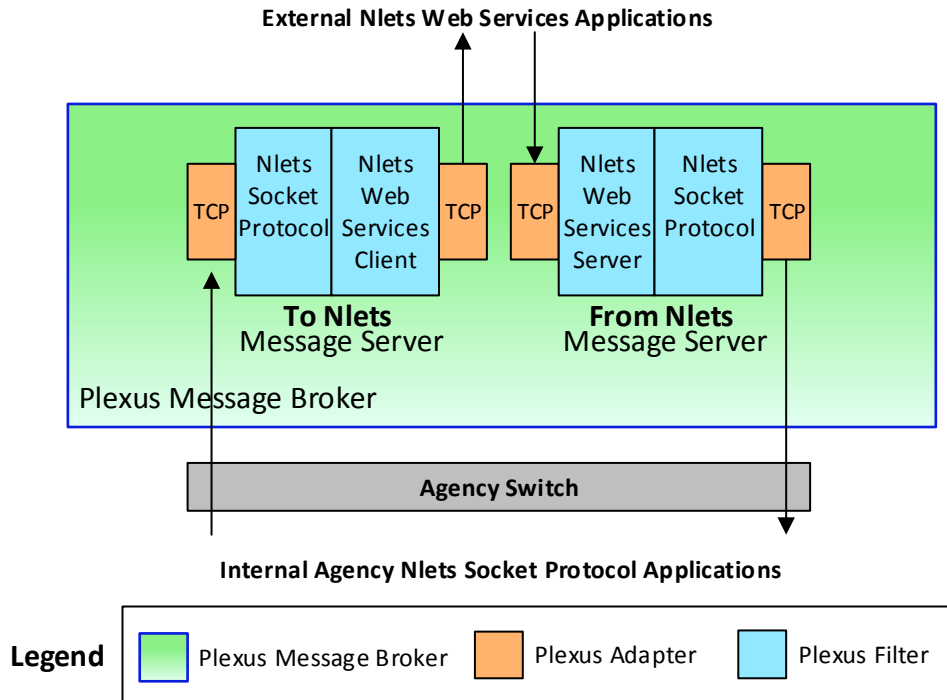


Plexus Message Server Functions

Message Server	Function
To Nlets	Receives a proprietary TCP request from the State Switch; retrieves the message; wraps the message in a Web Services format; and sends the message to Nlets via a Web Services call.
From Nlets	Receives a Web Services call from Nlets; unwraps the message; establishes a proprietary TCP protocol connection with the State Switch; and send the message to the switch via the TCP connection.

Plexus Message Server Details

The following figure drills down into the configuration of the Plexus Message Broker; in particular it provides insight into the Adapters and Filters used by each Plexus Message Server in this solution.



Adapters

Adapter	Description
TCP	Provides TCP connectivity services

Filters

Filter	Description
Nlets Sockets Protocol	On input from the Agency switch, extracts a complete message from the Sockets protocol and passes the message to the Nlets Web Services Client Adapter. On input from Nlets, receives the message from the Nlets Web Services Server and transmits the message to the State Switch utilizing the Nlets Sockets protocol.
Nlets Web Services Client	Initiate Web Services call to the Nlets system
Nlets Web Services Server	Receives Web Services calls from the Nlets system