Nsure Audit: Instrumenting Custom Applications:

Integrating and Instrumenting Applications with Nsure Audit

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The Presenters

Jim Gerken

- Nsure Identity Manager Lead – Novacoast, Inc.
- Mostly does Identity Manager – DirXML these days.

Rick Meredith

- Developer: Nsure Audit Team – Novell, Inc.
- iManager plugins, Platform Agent, java channels

Chris Steipp

- Developer – Novacoast, Inc.
- Various and Sundry programming projects around Nsure

Nsure Audit Components

Instrumentation

- Push code
- Most Familiar With Application

Platform Agent

- Secure Transmission
- Caching

Secure Logging Host

- Signing and Chaining - Non-Repudiation

Data Store

- Reporting Data – Application Specific

Reasons to Instrument an Application

Systems Administration Tool

- Notification Engine
- Administration Logging/Trending

Security Tool

- Audit Trail
- Compliance Documentation

Data Integrity Tool

- System Level Data Tracking
- Process Flow Tracking

Design Choices

What functions can be instrumented?

Re-utilize existing instrumentation?

What platform to use?

Java or Native?

Is Data Properly Sized?

Can Data be Normalized?

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Design Process for NNASyslog....

Client Requirements

- Audit events from Windows Servers, Active Directory, Network Infrastructure, Unix Operating Systems, in Addition to eDirectory, Netware, and Identity Manager
- Audit events for Security Department
- Medical Organization – HIPAA Compliance

Common Thread? - None

Instrumenting Eight Systems – None of Which Are Open

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Design Process for NNASyslog....

Syslog!

- Native to Unix
- Native to Network Infrastructure
- Syslog Instrumentation For Windows Exists
- Flexible and Easy To Instrument

Issues

- Data not Normalized
- Heavy Use of Text Strings
- Clear Text Transmission

Design Process for NNASyslog....

Platform Choices

- Windows – ugh!
- Unix – not flexible, or in client environment
- Linux – Yay!

How Should Data Flow?

How to Implement?

Where is Data Stored? – Attribute Mapping

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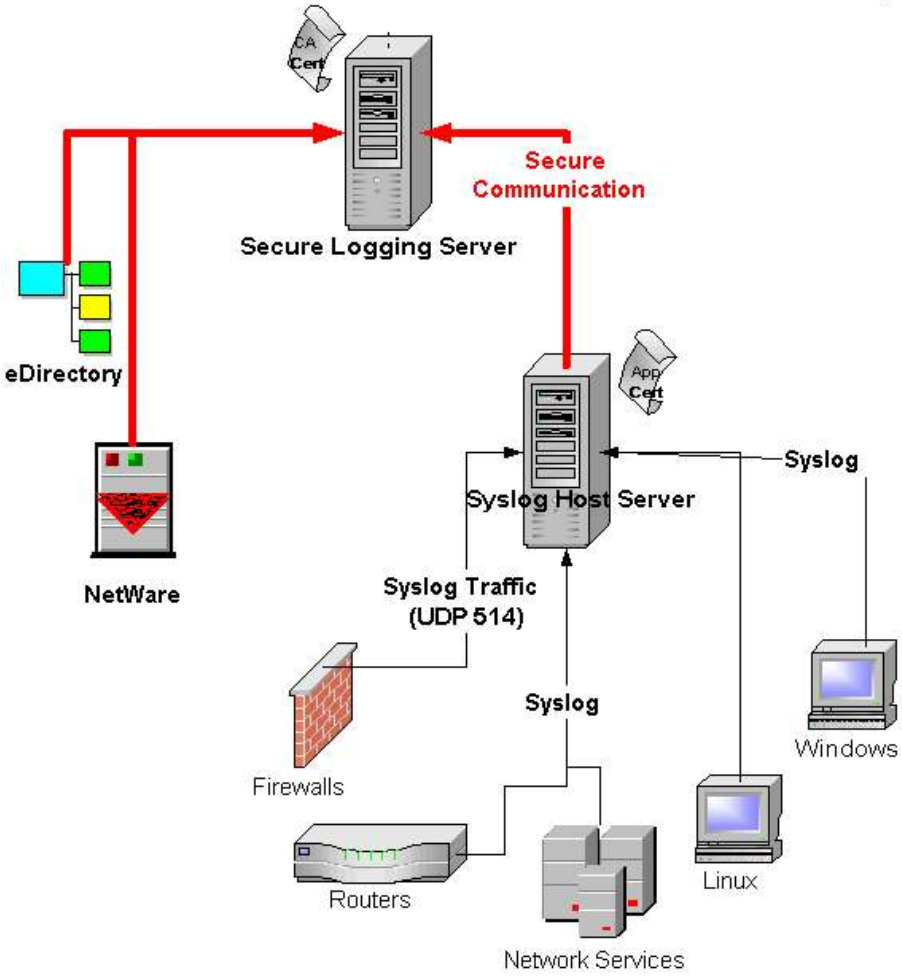
Implementation of NNASyslog - Layout



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Implementation of NNASyslog - Design

Decide on your Application ID

- Get one from Novell
- Use FFF0-FFFF

Compile List of Events

- This will eventually be your .lsc file

External vs. Embedded Keys

- Is Non-Repudiation Unnecessary?
- Is Non-Repudiation Optional?
- Is Non-Repudiation Required?

Caching vs. Non-Caching

- Dangers to Both!

Implementation of NNASyslog - Coding

```
#include <logevent.h>

unsigned char      *PKey = {
 "-----BEGIN RSA PRIVATE KEY-----\r\n"
 "MIIBOwIBAAJBALbEj/+zMrG26WCdW01YQMjaweYEWi0gTHM4X6tgvA47GjbUXDKY\r\n"
 "imO8jqGnFTP2ZB2MDM7+vz8ipKtkcv7WR08CAwEAAQJAfMt4e6MTUU9QyTyI1CYX\r\n"
 "jk34qaN9I2TzbpUmlfFmVtwSwLthbsokqtLl2hP7GcDWP1OjJbQQ0TaZHnrtjorB\r\n"
 "KQIhAN8E3CPlVORKppVaDlhWtECGGcLvj4Q533pWxNAjj34lAiEA0cvburq0ntsL\r\n"
 "2BT/Q87ZF/6dsIZcRkn3fpSPF2Xg02MCIQDSWK4duS8Bh5tpIKCJF3Y5qYHgx7zQ\r\n"
 "VRmANRi6y9+KdQIgH8F7wQgBzwnZARwsh1cIBVnFBLNRxFHt5HsYLbJ+FYECIQC5\r\n"
 "7QSTJt9T2J8Ye9cU1f1+hsYdBUOYf5IPUtqjORahNA==\r\n"
 "-----END RSA PRIVATE KEY-----\r\n"
 };
```


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Implementation of NNASyslog - Coding

```
LOGHANDLE handle;
unsigned long                LogError;
unsigned char                CertPath[_MAX_PATH+1];
unsigned char                PkeyPath[_MAX_PATH+1];
// Get Handle to the Platform Agent
  Handle=LogOpen(CertPath, PKeyPath, LE_FILE_CREDENTIALS|
  LE_SIGNED_CHAIN|LE_NO_CACHING, &LogError);
  //or
  Handle=LogOpen(CertPath, PKeyPath, LE_FILE_CREDENTIALS|
  LE_SIGNED_CHAIN, &LogError);
  //or
  Handle=LogOpen(Cert, PKey, LE_SIGNED_CHAIN, &LogError);
// Log the Event
  LogEventExt(Handle, component, EventIDLog, log_level, 1, 0,
  OrigHost,0, 0, 0, 0, (unsigned char *)Host, ShortMessage, 0, Seq,
  0, 0, MIME_TEXT_PLAIN, ndx-2, theMessage+2)
  //or
  LogEventDirect(Handle, component, EventIDLog, ....
LogClose(Handle);
```

Reporting Issues

Explore the Raw Data

Explore Data as Stored

How to set Notification Criteria

How to Report on Data

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Summary

Know your Application and Data

Pick your Platform and Language Properly

Normalize Data for Easy Reporting

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For More Info.....

- These slides are available at
  http://www.novacoast.com/seminars/brainshare2005.php

- Novell Nsure Audit NDK
  http://developer.novell.com/ndk/naudit.htm

- Novell Forge – Audit SDK thread
  http://forge.novell.com/modules/xfmod/newsportal/thread.php?group_id=1157&group=novell.devsup.naudit

```
<xsl:template match=”QUESTION”>
        <call-template name=”ANSWER”/>
</xsl:template>
```


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