Security Issues and Their Relationship to PI

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OSIsoft PI T&D Users Group Meeting

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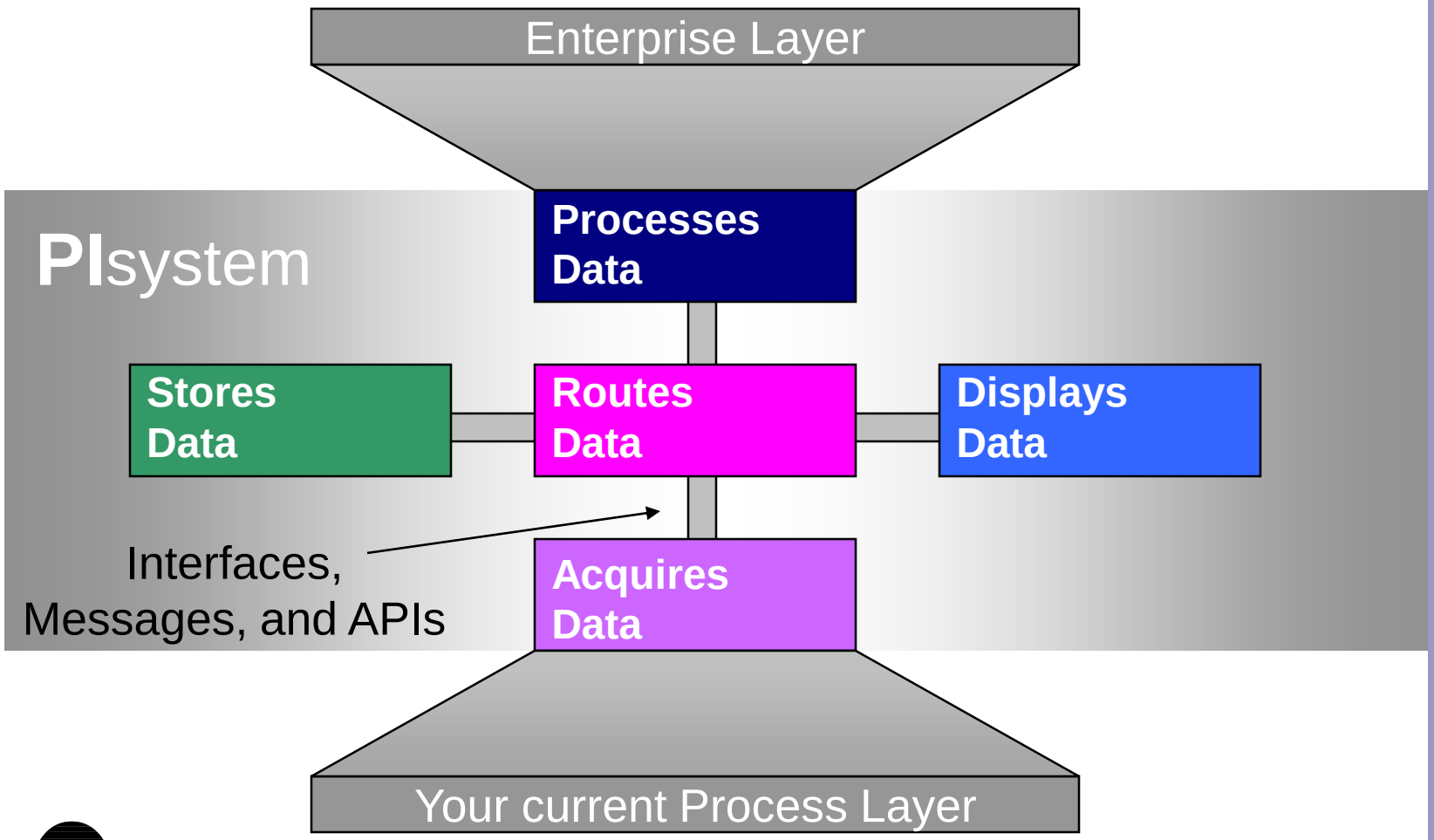
What is PI



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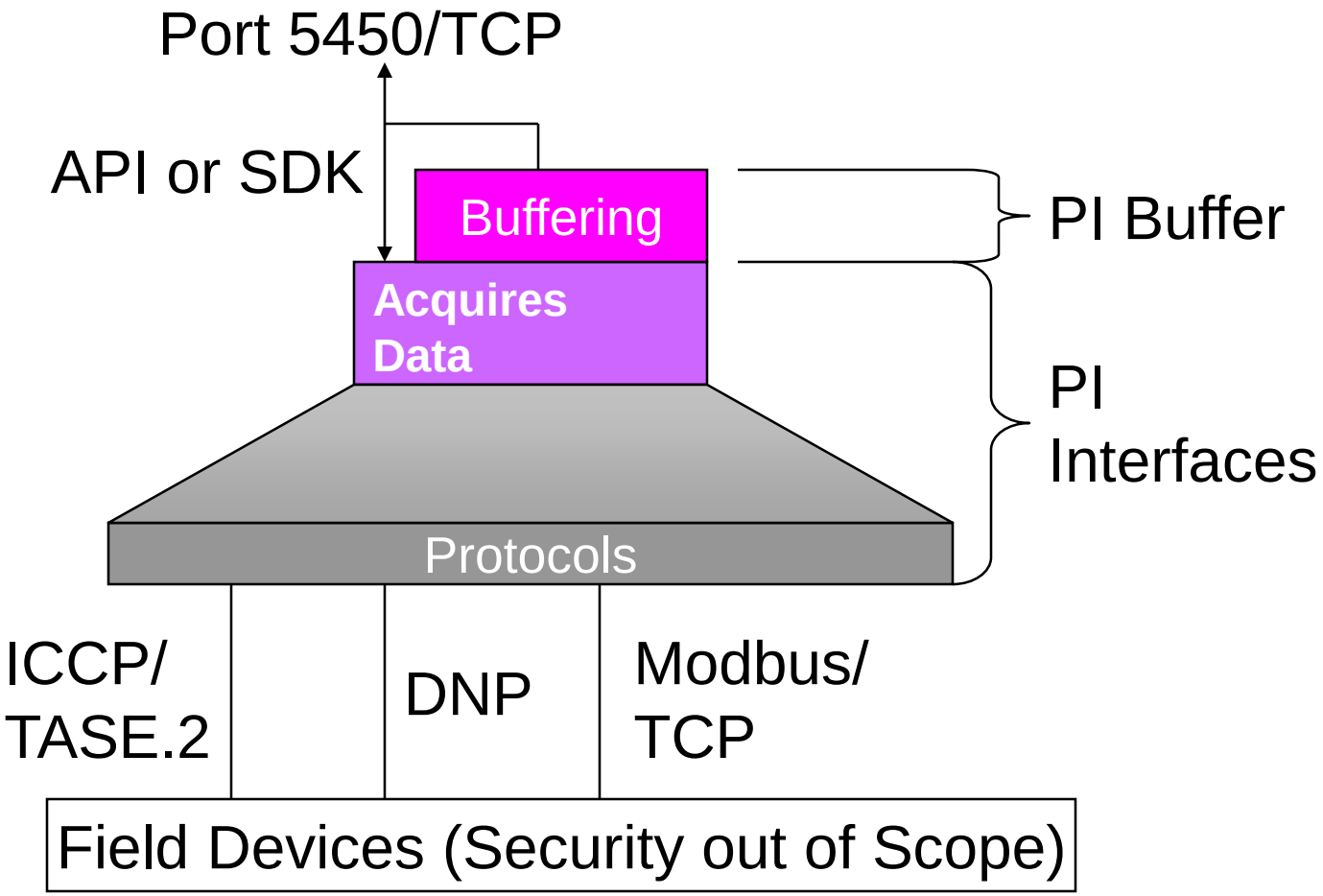
Acquisition



Securing the Protocols

- Intranet usage needs to be evaluated in regards to:
  - Confidentiality (provided by encryption)
  - Integrity (provided by message authentication)
  - Authentication (e.g. username/password)

ICCP and DNP are being secured as part of IEC TC57 WG15 (neither requires VPN usage)

Modbus has no standards body, suggest VPN usage.

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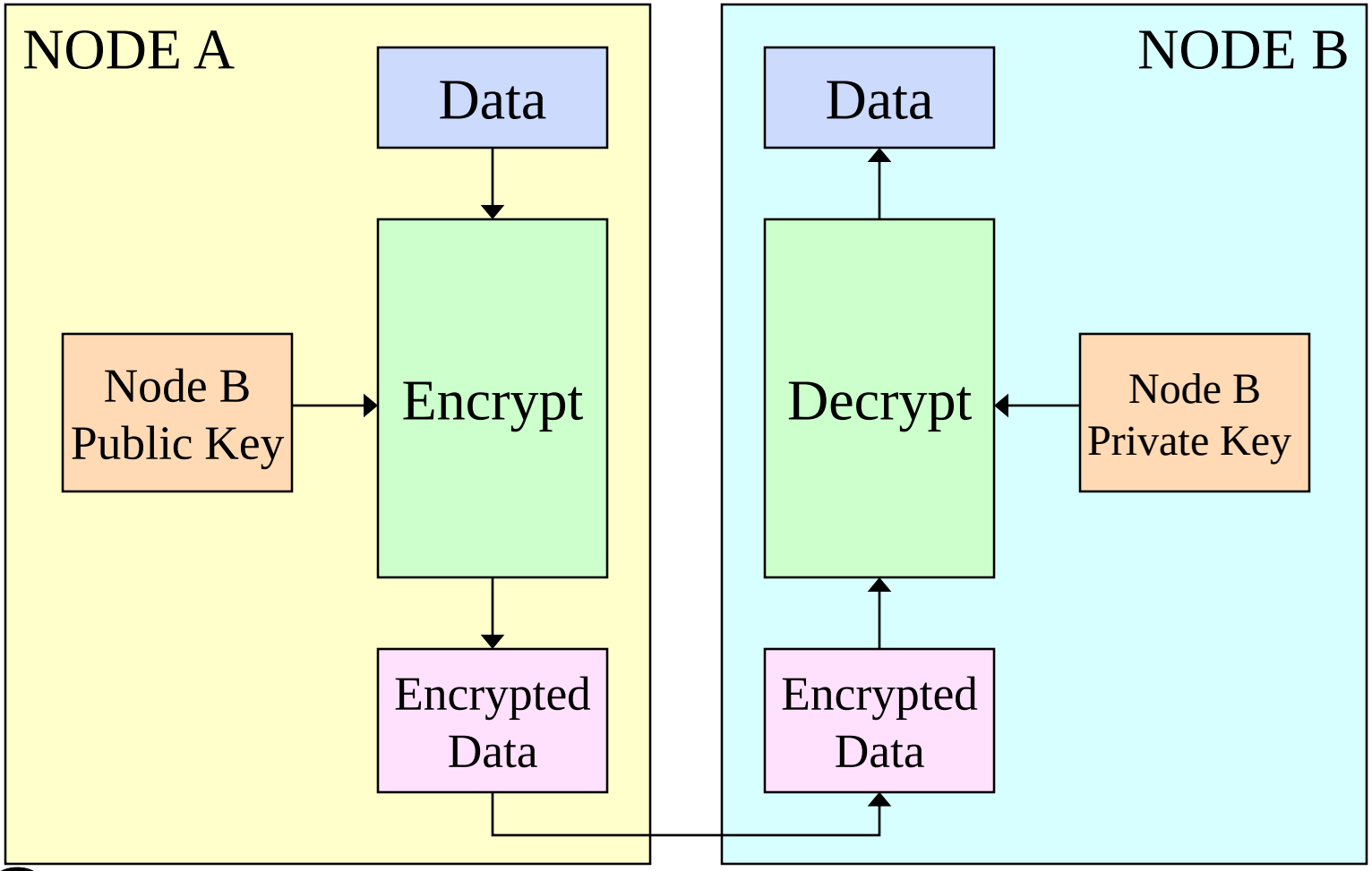
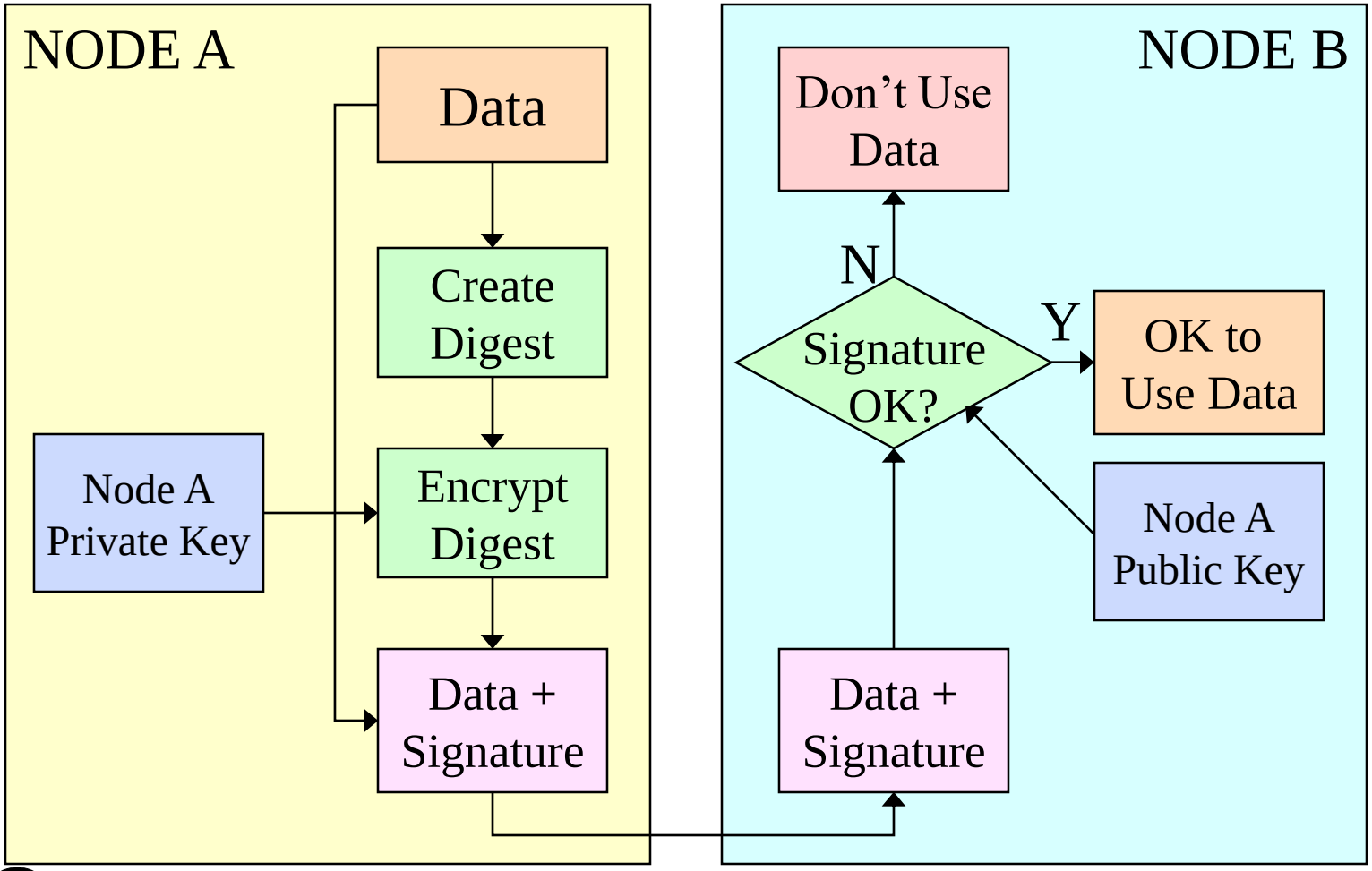
Public Key Encryption



Digital Signatures



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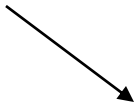
PI Interfaces (DNP Example)

No User-Password Means No Authentication



The following is an example file:

```
REM                                                    PIDNP3.bat
REM ------------------------------------------------------------------
REM
REM Sample startup file for the FLS ECS Interface to the PI System
REM
REM ------------------------------------------------------------------
REM
REM Required command-line parameters
REM         /ps=x                    Point Source
REM         /xml=path   Path to device config File
REM         /id=x                    Identifier and instance number
REM
REM Optional command-line parameters

REM         /f=SS                                  Defines the period between
scans in
REM                                                seconds
REM         /dnpdbg=level            Specifies the level of debug messaging
REM         /event=class             Defines the scan class as event type data
REM         /host=host:port          PI server node
REM
REM Sample command line
REM PIDNP3 /ps=P /id=1 /f=5 /f=10 /f=12:00:00 /event=3:1 /ec=20
/dnpdbg=0x013F /xml=C:\PIPC\Interfaces\PIDNP3\PIDNP3.xml
REM ------------------------------------------------------------------
REM Revision History
REM Date      Author Comment
REM 20-Mar-02 JAC     Written
REM ------------------------------------------------------------
```

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Need for Additional Security

- If API nodes are outside the PI server(s) fire-walled network.
  - Need Authentication
  - Possibly Need Encryption
  - Want it to be transparent
- Can use:
  - Stunnel (a SSL generic wrapper) (http://www.stunnel.org)
  - IPV4-V6 Bridge on Windows XP.

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What is Stunnel?

- GNU Product
  - Certificate based configuration for authentication and encryption.
- Free for both commercial and non-commercial use.
- Source code available.
- Binary available for Windows based environments.

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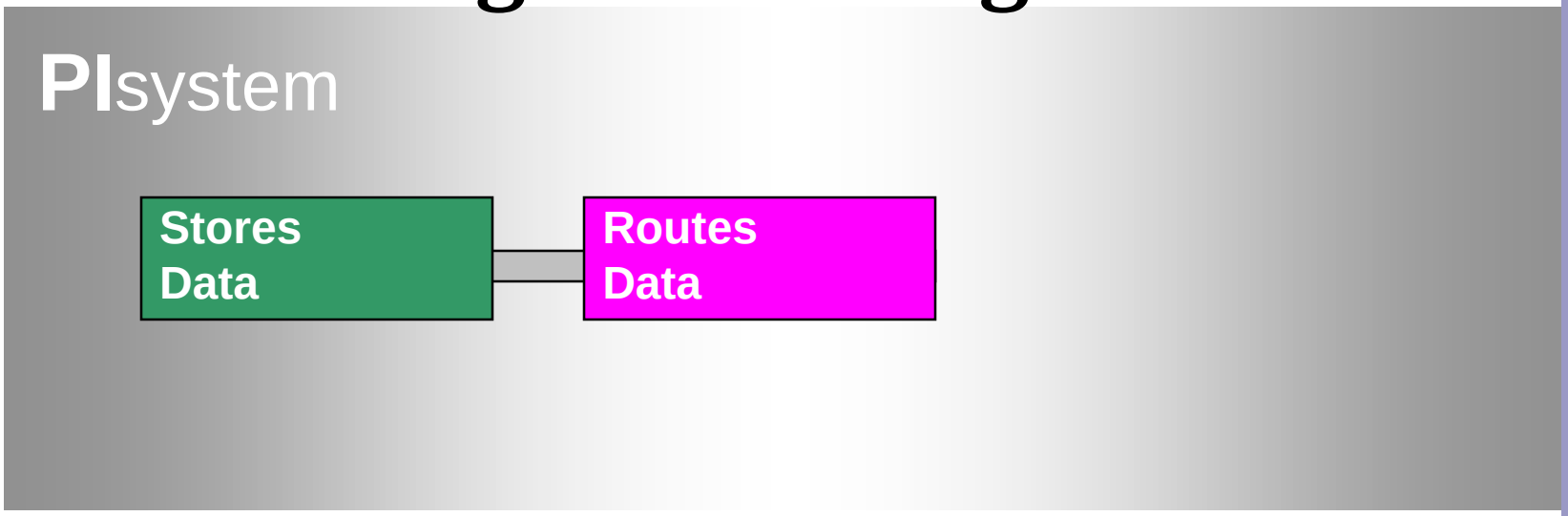
Routing and Storage of Data



Typically in a controlled, fire-walled environment.

Typically on the same machine.

NT User Authentication and security (properly implemented) provides enough functionality.

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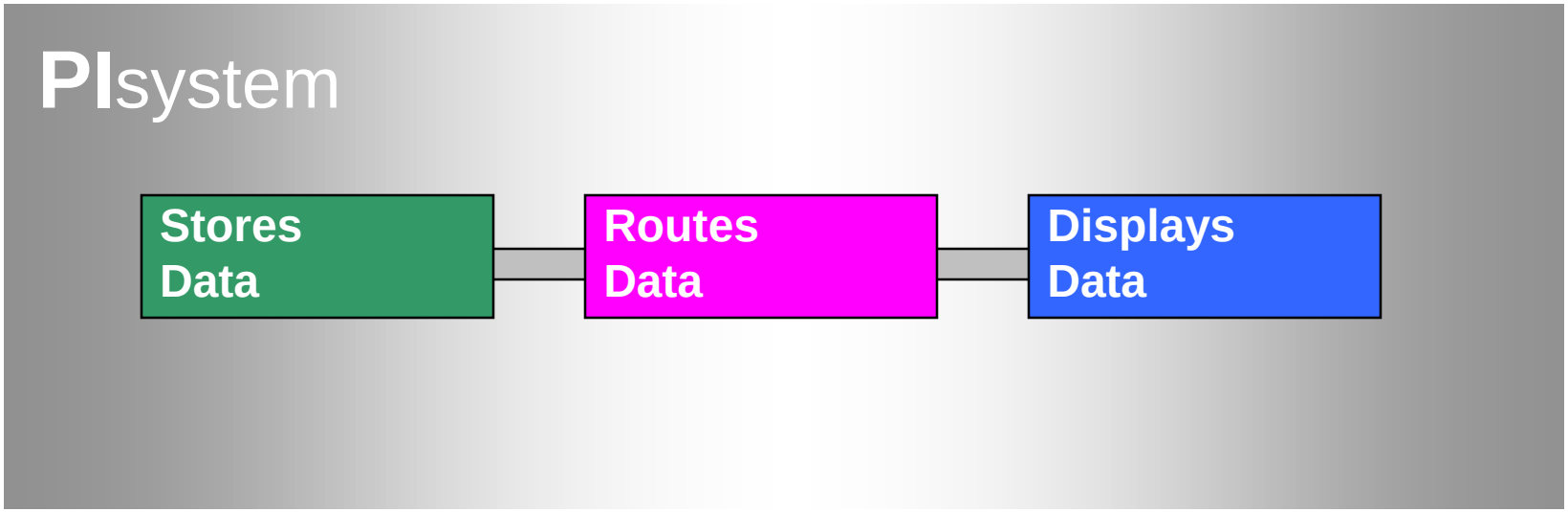
Processing Data



Four different Displays:

- Custom (e.g. VB)
- ProcessBook
- ActiveView
- PI ICE (Http/Web services)

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Custom, PB, and ActiveView Displays

- Both allow applications to use NT Security for login administration.
  - Applications must be constructed to make use of this ability (and not just an open PI Admin account).
- If encryption is needed, then Stunnel could be used (or equivalent).

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PI ICE

- Secure environment provided if properly configured.
- Make use of HTTPS for encryption.

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Summary

- PI products can be made extremely secure:
  - Proper administration of OS is required
  - Determination of where strong authentication is required.
  - Determination of where encryption is required based upon deployment topology.

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Thank You

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