



LONMARK[®]
Connection

**LonMark Educational
Seminars
1:00 – 2:00**

Enterprise Connectivity

Jeremy J. Roberts

Description

Multiple Protocols:
co-existence in Enterprise but managed as
single system

IT environment: Any GUI, XML, LAN
Common interface, oBIX, IP-852

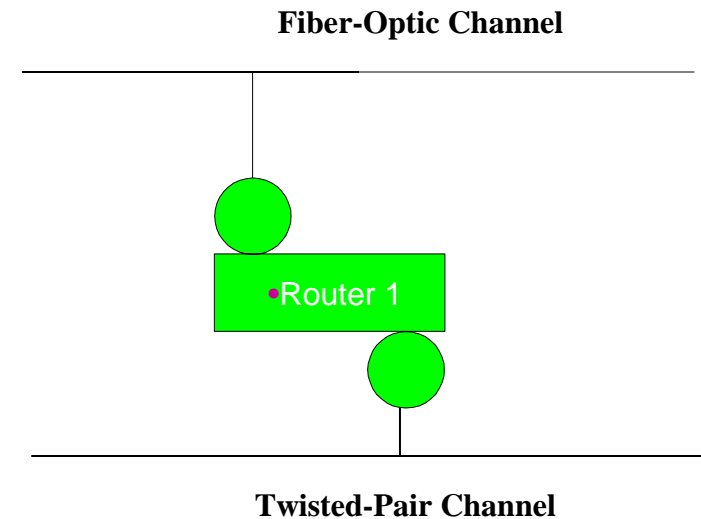


A trip through the Tunnel of LON[®]



LONWORKS Network Routers

- Connect two channels together
- Can isolate network traffic
- Can extend channel distance and device count limitations
- Can connect different media
 - e.g. between fiber-optic (FO) and twisted-pair (TP) media

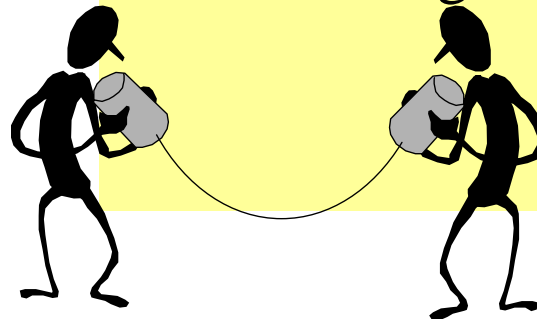


A LONWORKS Channel

- A channel is the media over which devices communicate
- A channel is the physical network connection
- Different channels can be connected together with routers
- Generally the transceiver type characterizes a channel
 - Maximum number of device
 - Maximum distance

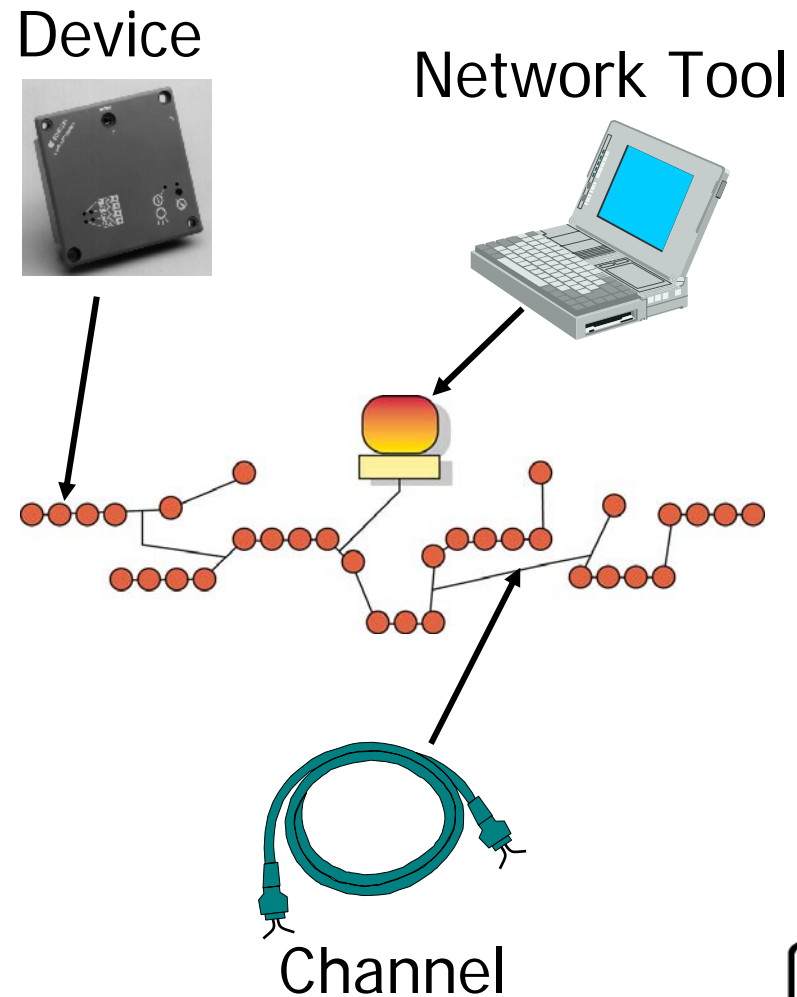
(Almost) any media possible:

- Twisted-pair cable (TP)
- Fiber optics (FO)
- Powerline carrier (PL)
- Radio frequency (RF)
- Infrared (IR)
- Internet protocol (IP)
- Smoke Signal (PUFF)



Primary LONWORKS Network Elements

- Channel
 - Media to which devices are connected
- Device
 - Actuator, sensor, controller, or combination
 - LONMARK Certified
- Network tool
 - Installation tool
 - Human machine interface (HMI)



The Language of LONMARK

Confused by the language of interoperability?

A basic breakdown of the language that defines an interoperable device:



LONMARK is to English...

■ LONMARK

- Bits/Bytes
- Basic Types
- SNVTs/SCPTs
- NVs/CPs
- Profiles

■ English

- Letters/Sounds
- Words
- Dictionary
- Sentences
- Context



LONMARK is to English...

■ Bits/Bytes

□ 11111111

(binary)

□ FF

(hexadecimal)

□ 255

(decimal)

□ 377

(octal)

■ Letters/Sounds

□ ABC...XYZ

(English Alphabet)

□ a b c d e f g h i j k l m n o p q r s t u v w x y z

(International
Phonetic
Association)



LONMARK is to English...

■ Basic Types

- unsigned short
- unsigned long
- signed short
- signed long
- enumeration
- structure
- union

■ Words

- Dog
- Cat
- Horse
- Cow



LONMARK is to English...

■ SNVTs/SCPTs

- “SNVT_temp_p”
 - Precise HVAC temperatures
 - Defined range and resolution

- “SNVT_angle”
 - Rotation or Phase in Radians

■ Dictionary

- “Bonnet”:
 - Metal Cover for Vent, Fireplace, or Car Engine

- “Pop”:
 - Soda
 - Soft Drink
 - Carbonated Beverage



LONMARK is to English...

■ NVs/CPs

- nvoTemp
Output of a
temperature value
- nciDefault
Default
Angle value
to be stored

■ Sentences

- “Lift the bonnet.”
Raise the hood.
- “I want some pop.”
A carbonated
beverage is
desired.



LONMARK is to English...

■ Profiles

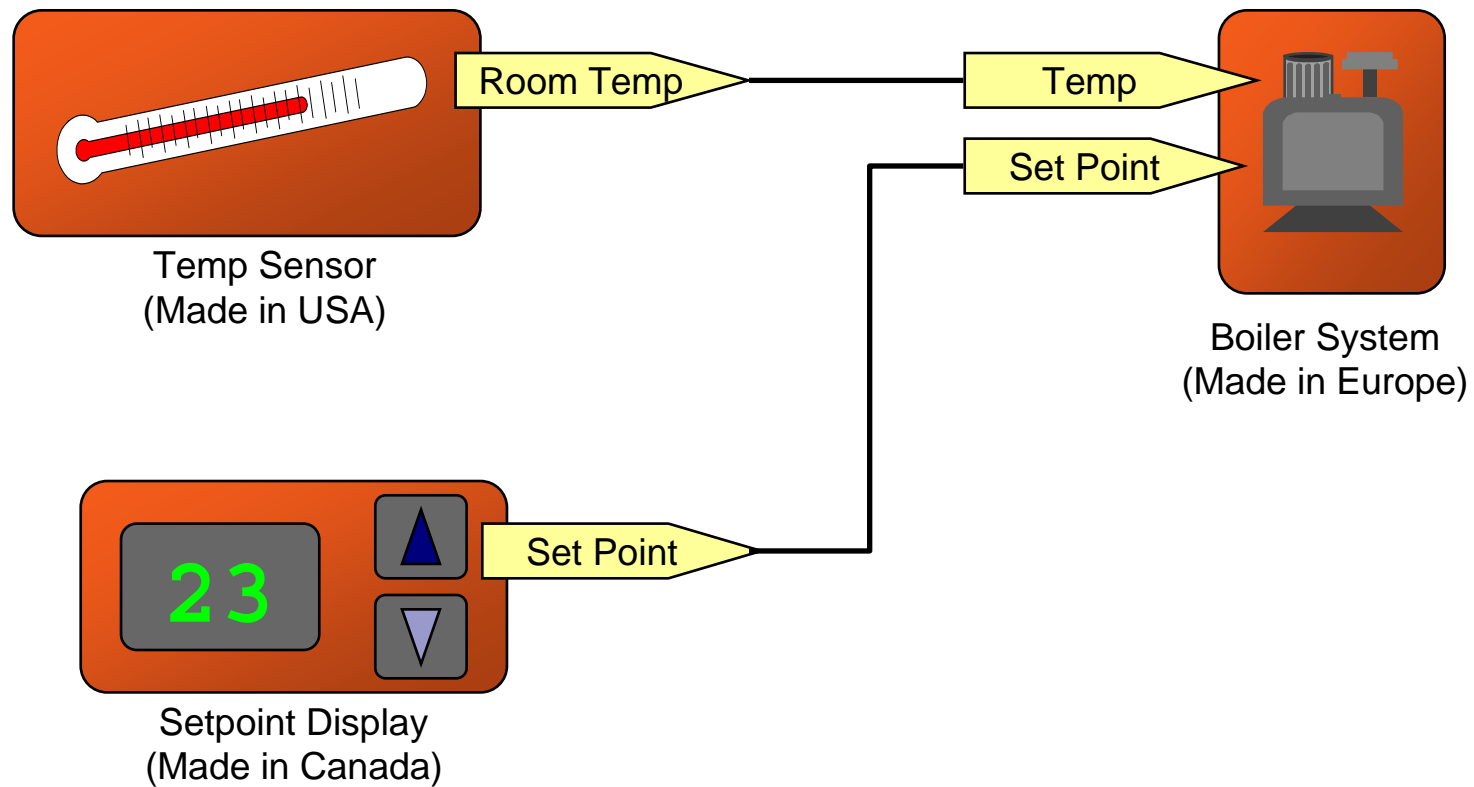
- nvoRoomTemp
Output of the temperature of the room, throttled by MinSendTime, with a restricted range of 10 to 40 degrees for normal.
- nciPhaseDefault
Default Phase Angle for the damper.

■ Context

- “Lift the bonnet for repairs.”
To repair the combustion source, the hood must be removed.
- “I wish to drink some pop.”
A carbonated beverage is desired for consumption.



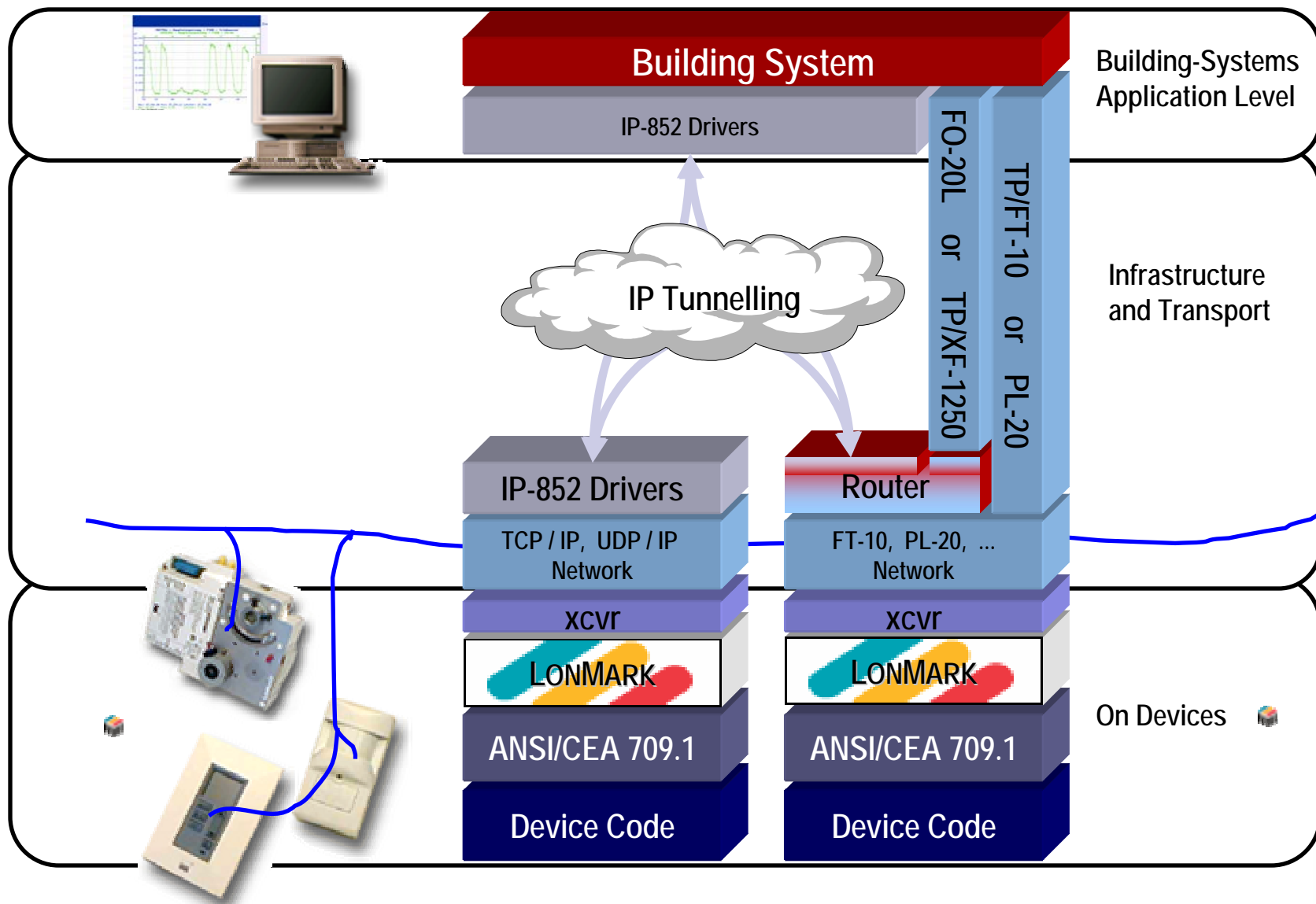
Sharing Data Via Network Variables



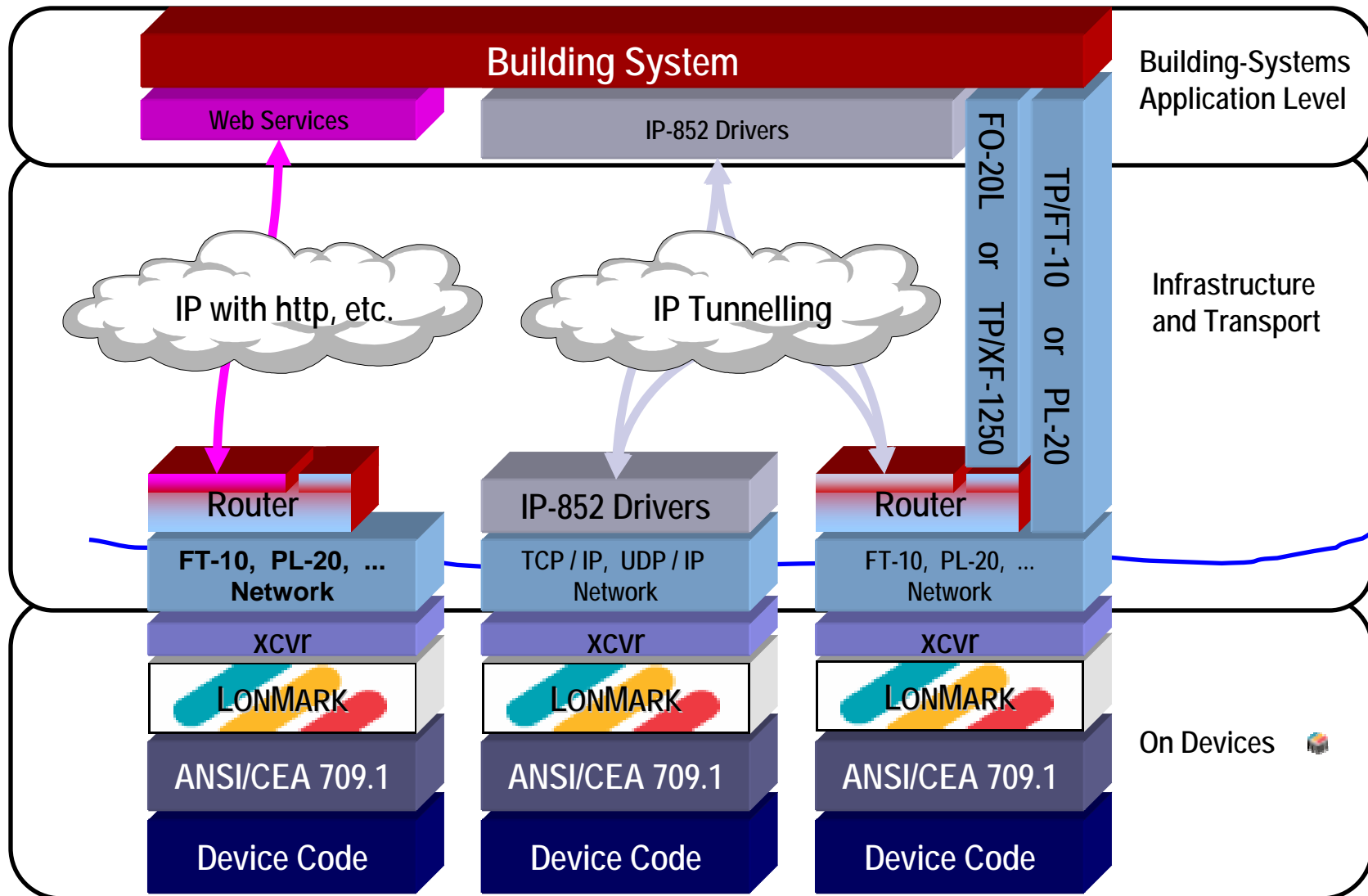
Two examples of standard Network Variables: "Temp" and "Set Point."



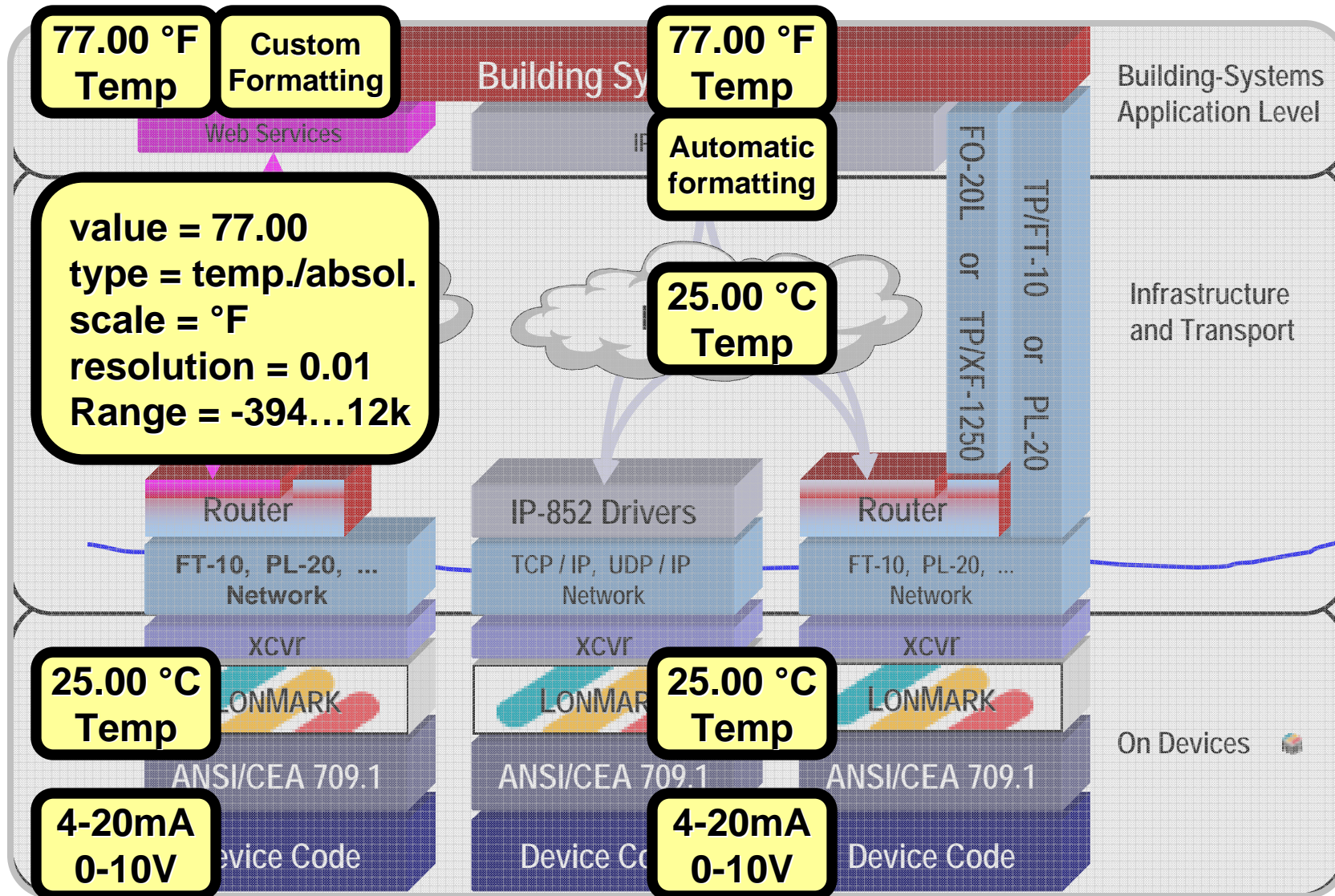
Tunneling or pure LonTalk?



What about Web Services?



What about Web Services?



value = 77.00
 type = temp./absol.
 scale = °F
 resolution = 0.01
 Range = -394...12k

25.00 °C
 Temp

25.00 °C
 Temp

4-20mA
 0-10V

