

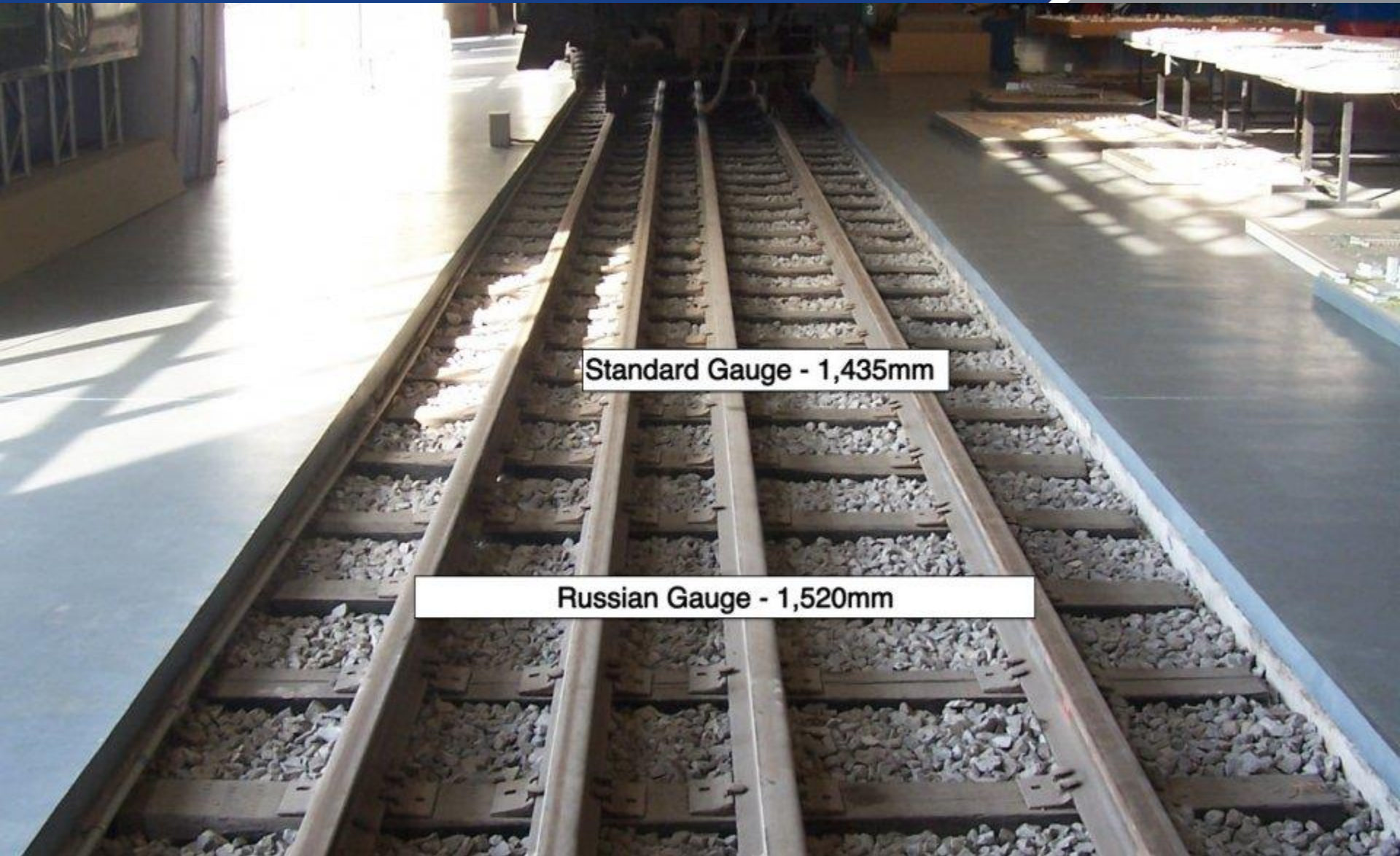


Lighting... Global. Intelligent. Sustainable.

Standards are Useless
– Without Application Interoperability

Russ Sharer
VP Marketing

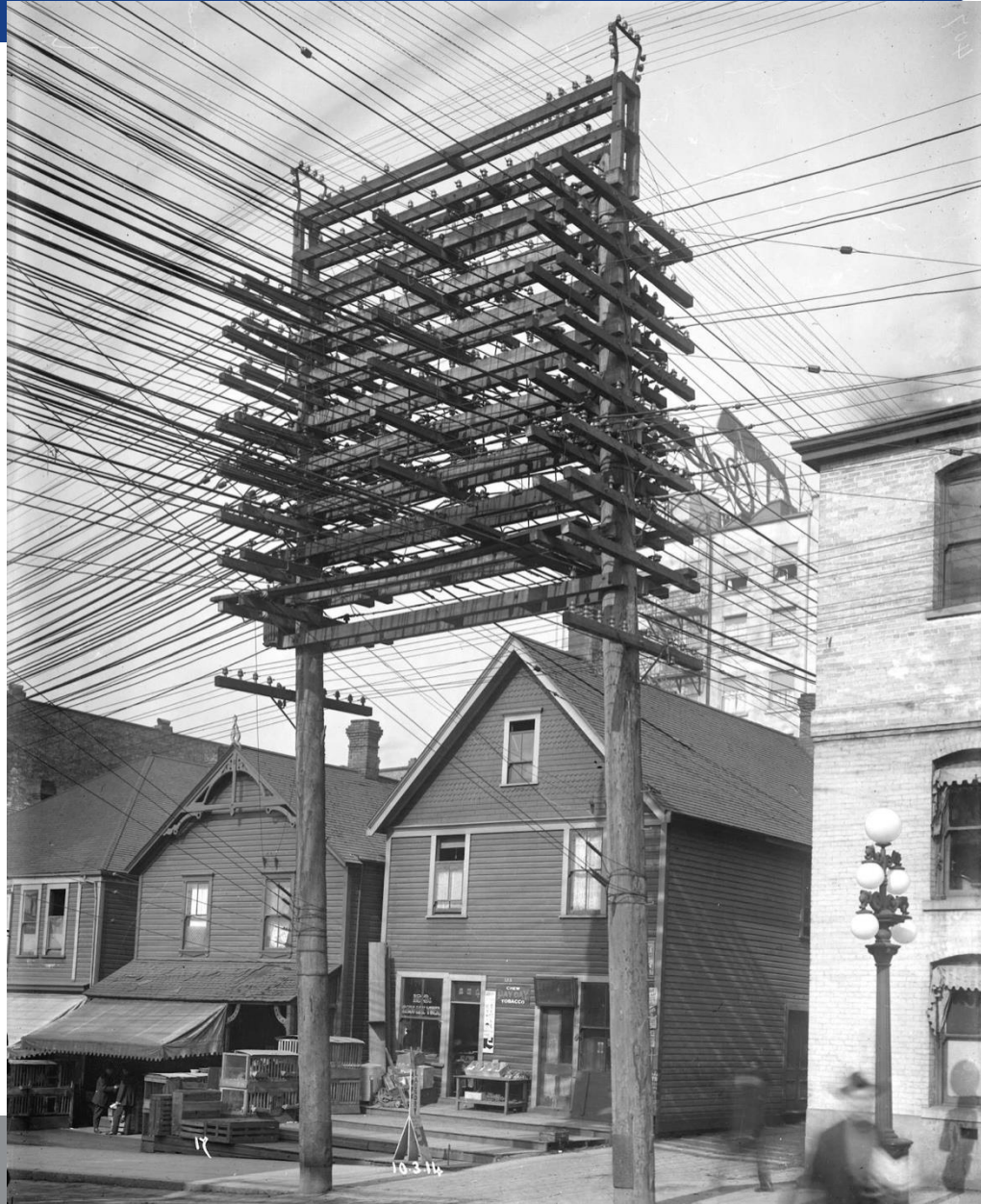
Railroads Learned to Interoperate



Standard Gauge - 1,435mm

Russian Gauge - 1,520mm

Electricity Learned to Interoperate



Phones Learned to Interoperate



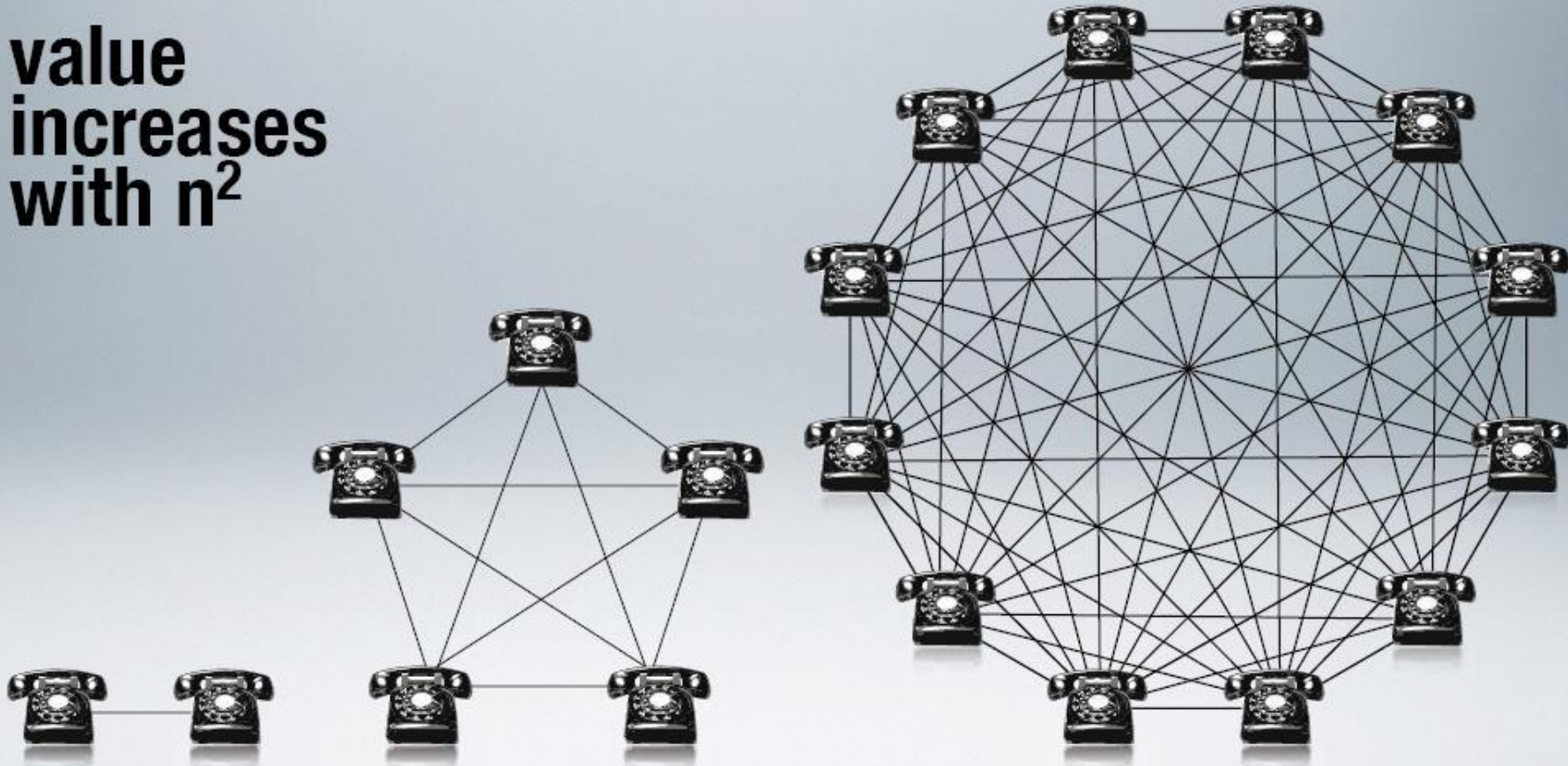
Walled Garden

A software system where the service provider has complete control over applications, content, and media, and restricts access to non-approved applications or content.

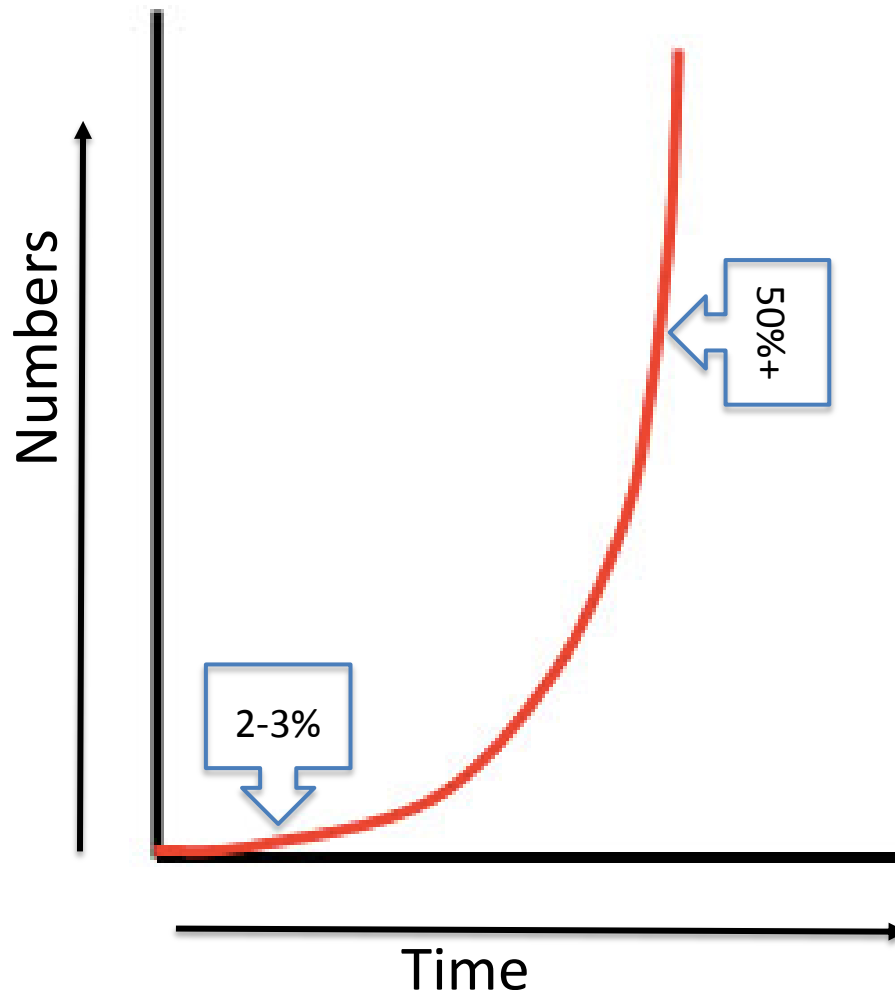
WHY?

METCALFE'S LAW

value
increases
with n^2



Interoperability Benefits All



Easily Understood
Easier to Install
Easier to Troubleshoot
More Trained Installers
Faster Rol
More User Choice
Focus on True Value Add

Defining Interoperability

Application Layer
Presentation Layer
Session Layer
Transport Layer
Network Layer
Data Link Layer
Physical Layer

OSI Reference
Model

Letter
Envelope
Mail Bag
Mail Cart
Postal Container
Tractor Trailer
Highway



Models and Limited Interoperability



Application Layer
Presentation Layer
Session Layer
Transport Layer
Network Layer
Data Link Layer
Physical Layer

**OSI Reference
Model**

Applications
RFCOMM / SDP
L2CAP
Host Controller Interface (HCI)
Link Manager (LM)
Link Controller
Baseband
Radio

Bluetooth

ZigBee App Objects + ZigBee Security Services
ZigBee Routing (AODV)
802.11 LLC
802.15.4 MAC
868MHz/915MHz/2.4GHz

802.15.4 and Zigbee

Data Link Layer
Physical Layer

PoE

Data Link Layer
Physical Layer

WiFi

What Must Be Done?

Commitment

- Standards aren't Interoperability
- Accelerate open control networks

Forget Generic Arguments

- *"My equipment is special"*
- *"Security for the control network is too important"*
- *"We can't trust IT to run the network"*

What Must Be Done?

Share Control

- Multivendor installations will dominate
- Work with IT Partners

Create Safe Interop Test Location (University?)

- “Plugfests” so components can be tested
- Help develop common installation and test tools
- Develop core training for designers/installers

Thank You

Russ Sharer

rsharer@fulham.com