Rise of the Machines

How IoT will transform our world

Introductions – Who Am I

Belden

Manufacturer of
End to End Signal Transmission Solutions

Four Business Platforms
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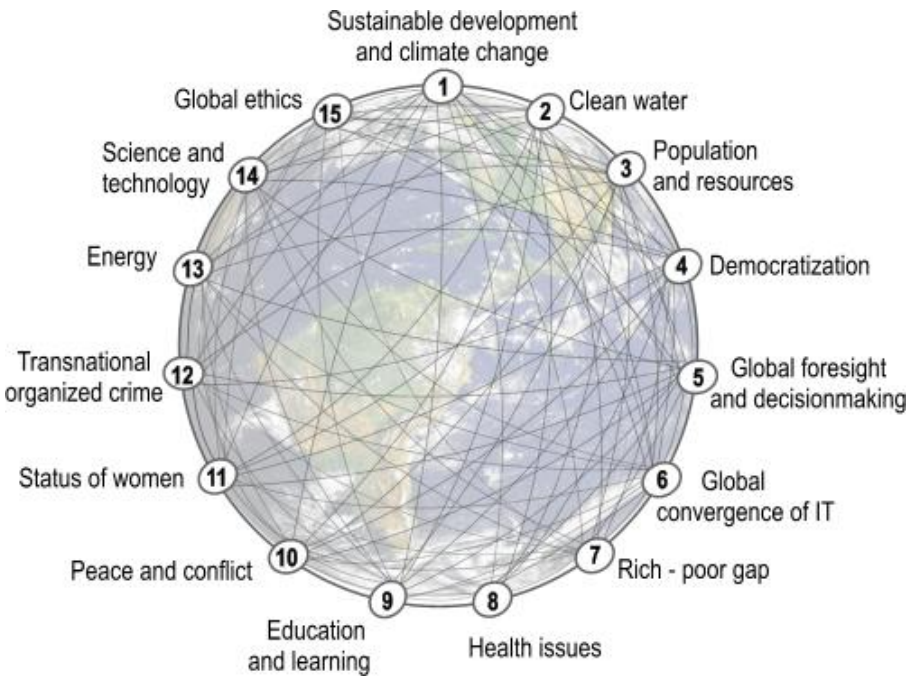
Introductions – Who You Are

- Telecommunications as ***Core*** to Enterprise
- Telecommunications as ***Complimentary*** to Enterprise
- Professional Community and System Integrators
- Contractors, Vendors and Interested Parties

A Diverse Team With Varying Needs and Capabilities

Why is IoT Driving Change?

The IT Prospective…



IT is part of the PROBLEM…

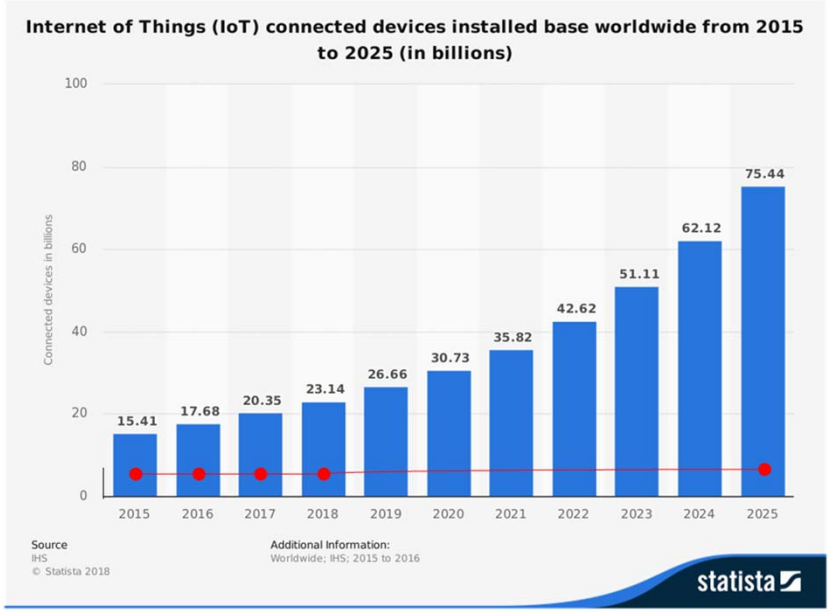
IoT is part of the SOLUTION

- Information Transparency
- Access to Resources
- Resource Efficiency
- Human Enablement

http://www.millennium-project.org/millennium/challeng.html

IoT - Rise of the Machines

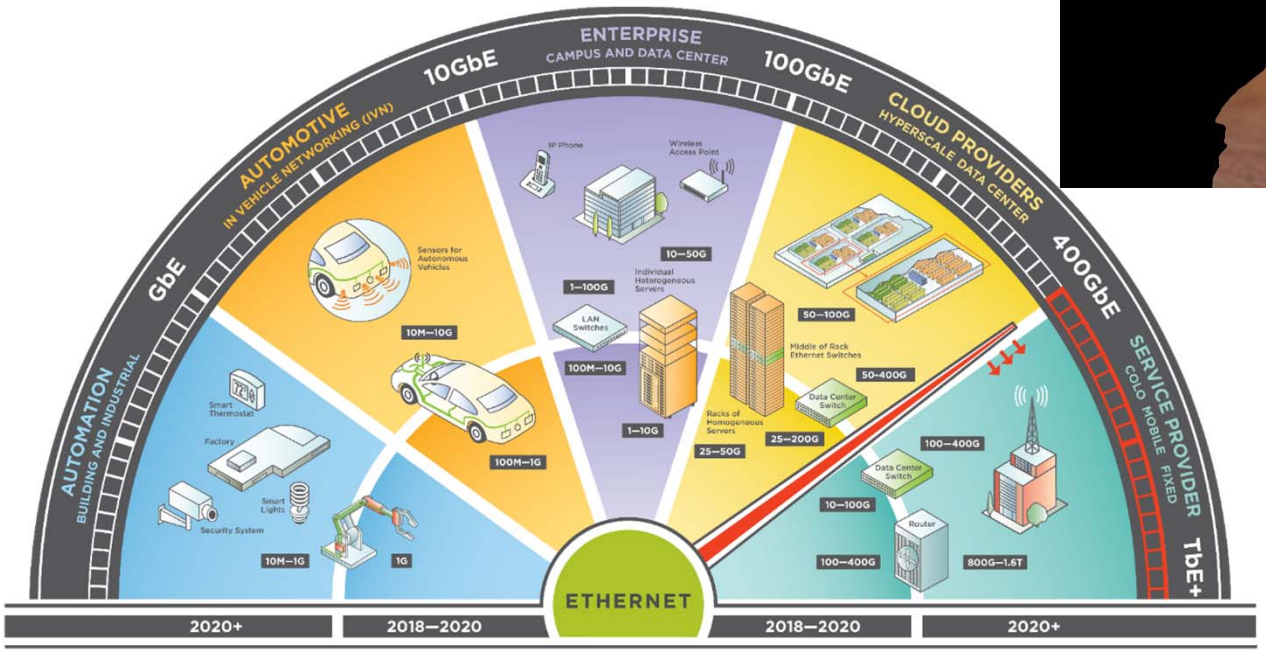
- World population 7.5B (2018)
  - Estimated 8.1B (2025)
- Connected devices are already close to 3X our population
  - Increase to more than 9X (2025)
- Existing design criteria have traditionally been centered around P2P or P2M Communications
- Convergence 2.0 is here and now



Source HIS and Forbes via Statista

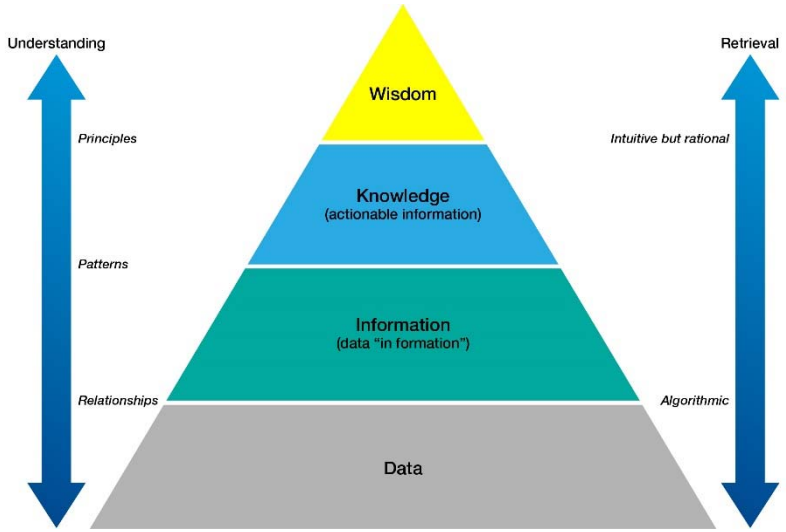
It's Not About Our Needs – It's About Theirs!

Ethernet Roadmap



ethernet alliance

The Illusion of Connection



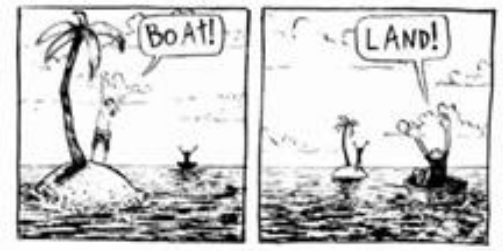
- Is everything really connected?
  - Do we realty have a Internet of Things?
  - What is an Intelligent Building?
  - Evolution is a process not a switch
- Is it Purposeful?
  - Big Data by itself is not enough
  - "01000010 01101001 01100111 00100000 01000100 01100001 01110100 01100001 00100000 01100010 01111001 00100000 01101001 01110100 01110011 01100101 01101100 01100110 00100000 01101001 01110011 00100000 01101110 01101111 01110100 00100000 01100101 01101110 01101111 01110101 01100111 01101000 0001010"
  - Or in other words "42 69 67 20 44 61 74 61 20 62 79 20 69 74 73 65 6c 66 20 69 73 20 6e 6f 74 20 65 6e 6f 75 67 68 "

Making Meaningful Connections

- Do we want everything to be?
  - Should everything on the same or similar platform?
  - Where should they meet?
  - First we need to see
  - Then we need to assess
  - Only then can we decide and act
    - Artificial ‘Intelligence” will be a requirement
  - What are your requirements for security, resiliency, recovery and continuity?

What Does That Mean for my Infrastructure?

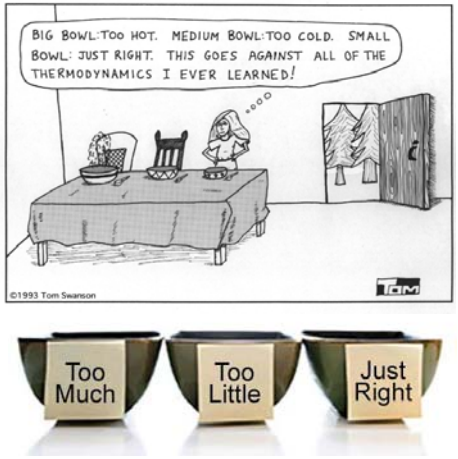
Design Principles



- Our current design principles – essentially center around P2P networks
  - Traditional voice and data, sometimes WiFi
- What is a Digital Building?
  - Electrical, mechanical, security, access control, fire detection, alarm & annunciation, lighting, blinds, water & waste, asset & resources, destination dispatch, occupancy & environmental sensors/actuators/controls, room allocation, guest sign-in/monitoring, smart glass, energy capture, environmental quality, wayfinding & digital signage, and so on and so on …
  - More network connections are now M2M/IoT
- Different needs based on different applications and devices

Lessons Learned from Childhood

- One Size does not fit all
  - Bigger isn't always better
  - Less can be more
  - Things don't always get faster
  - Future proofing may be a waste

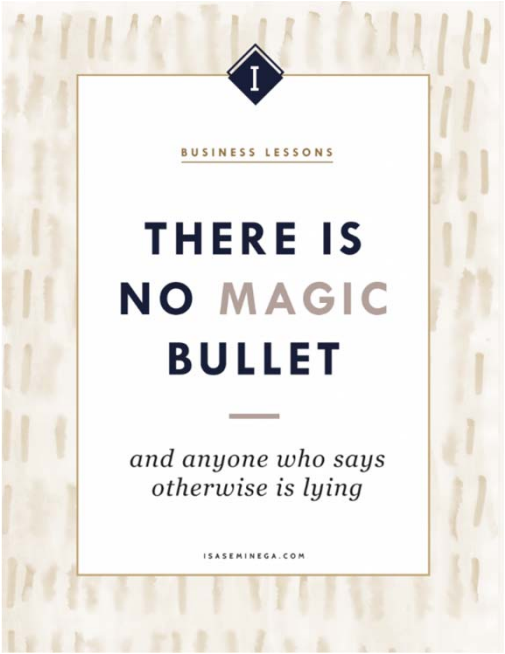


"You have brains in your head. You have feet in your shoes. You can steer yourself, in any direction you choose."

Our Fairy Tales Had Important Messages

The New Design Paradigm

- Design requires thought
- Entering a new golden age of ICT
- Future proofing is a myth and may be dangerous
  - There are *No* magic products
  - There are *No* magic bullets
  - Does that mean we throw out BICSI/TIA/ISO?
  - NO if anything it's even more important



We Must Build Strong Foundations!

What do we know?

- We can only provision for what we know
- What are you trying to achieve?
  - Define the need
  - Marketing is an act of promotion through an expression of possibility
- But we need a philosophy that is readily scalable, and adaptable
  - Follows the principles of structured cabling
  - Details change
  - As do materials and methods

If you can't define the need you can't define the deliverable

Defining the Need – We Can't Build What We Don't Know

Requirements

The conditions, tasks, products or systems that must be completed to *ensure successful completion* of the project and/or operations.

Specifications

A *detailed, precise* presentation of something (or of a plan/proposal for it), as well as legal particulars for the procurement of it.

Codes

Protect life limb and property, but nothing has to work.

Standards

Ensure a minimum level of performance with minimum standards with no value/cost/comparisons allowed. Typically IEEE, ANSI, TIA and some BICSI documents.

Best Practices

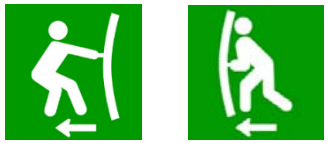
Give recommendations based on perceived 'value' to maximize 'value'. Subjective. Typically BICSI or other association documents.

Manufacturer Guidelines

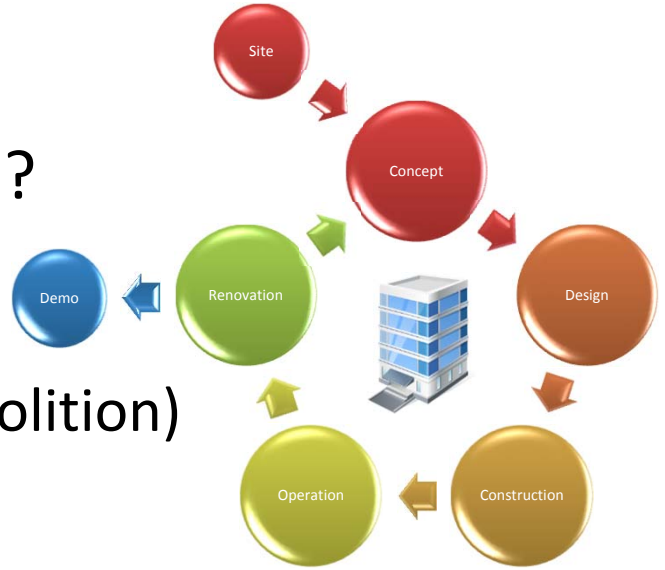
Typically a set of practices tied to a specific product line (may explain deviation from standards and/or best practices).

Marketing

A description of the vendors capabilities from a product and service standpoint … not necessarily tied to any of the above



Defining the Requirements

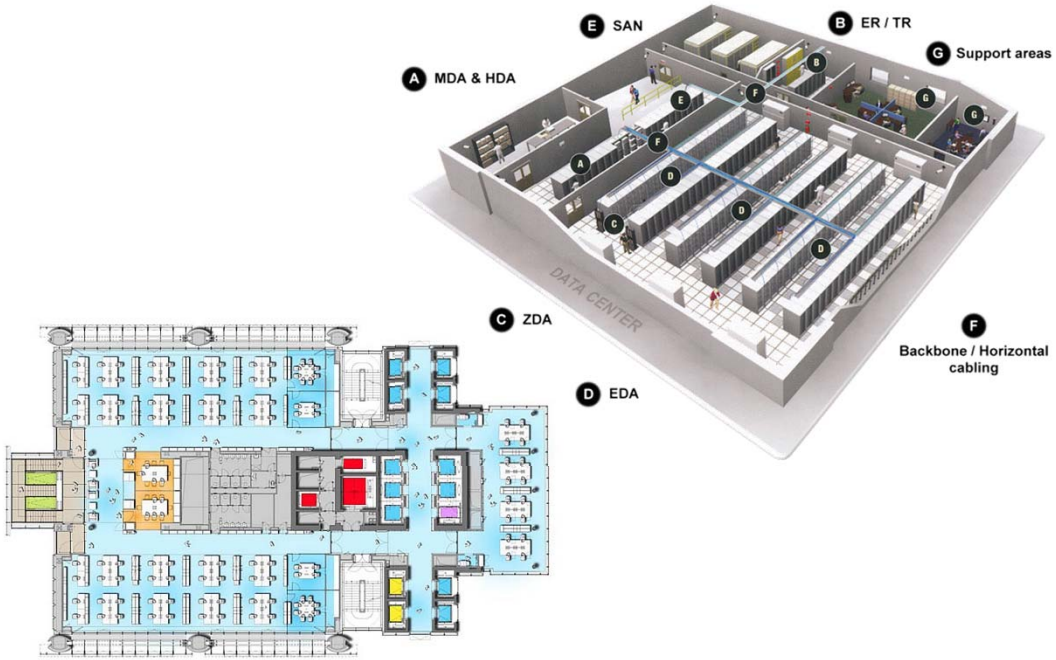


- Why do we need a specification?
  - New build
  - Expansion
  - Renovation (and ultimately demolition)
    - Complete or phased
  - Technology Upgrade
    - Bootstrap; or bridge
- What are you trying to achieve, and how?

Not Just the Physical Need - Don't Forget the Forecast

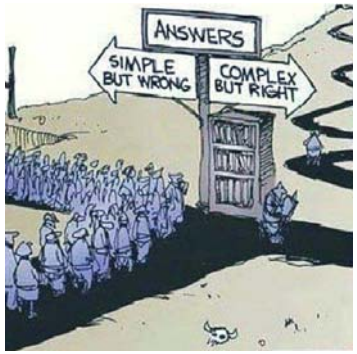
Practical Examples

- Pathways and spaces are critical
- Start at a high level and work down
- Use allowances, accept the unknown
- Continually work to reduce the unknown



How will you deal with uncertainty and change?

So how can be Future Ready???



- It's about philosophy not minutiae
- It's having a better descriptive understanding as opposed to a prescriptive formula
- Bring in idea of cost/value/lean impacts about variance in need and forecast
- Don't panic – we don't have to have all the answers right now

There is no formula!

Thank you!

Questions?