

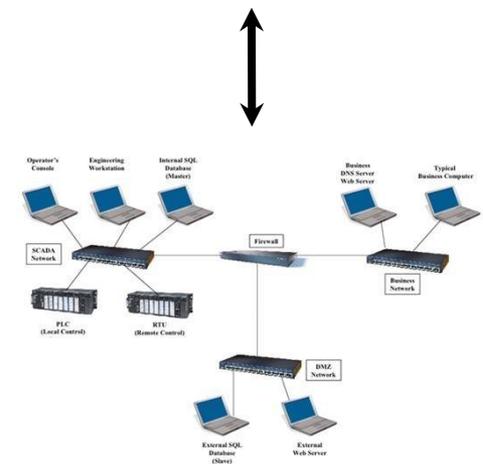
# A Call For A Bottom Up Approach

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# What Are We Talking About ?

- ◆ **The Smart Grid**
  - ◆ Advanced Metering Infrastructure (AMI)
  - ◆ SCADA and Other ICS
  - ◆ All Pieces In Between
- ◆ **General ICS**
  - ◆ All Utilities (Not Just Power)
  - ◆ Chemical, Pharmaceutical, Food
  - ◆ Consumer Products
  - ◆ Industrial and Military
  - ◆ Everything Else...

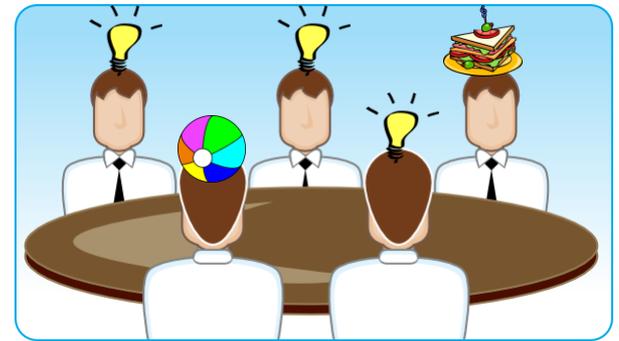


**Like It Or Not, It Will All Be Interconnected**

# Security At A High To Mid Level

- ◆ **Great Work Developing Standards, Guidelines, Procedures**

- ◆ Lots Of Conferences, Meetings And Webinars
- ◆ DHS Catalog Of Control Systems Security
- ◆ NERC CIP
- ◆ NISTIR 7628
- ◆ The list goes on and on...

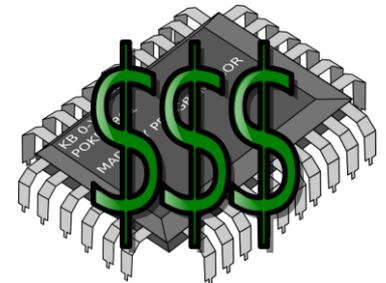


- ◆ **Focused On “Modern” Technology, Protocols, Systems**

- ◆ IP Based Communications
- ◆ “Acceptable” Service Levels
- ◆ Assumes High System Resources (Power, Processor Speed) In Many Cases
- ◆ Commercial Off The Shelf (COTS) Solutions Abound

# Getting Down To The Low Level

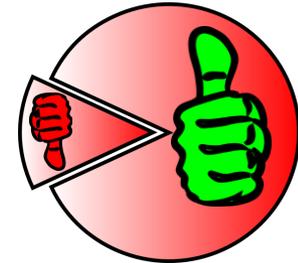
- ◆ **Both AMI and ICS Create Unique Security Challenges**
  - ◆ Resource Constraints
  - ◆ Lifecycle Requirements
  - ◆ Service Level Requirements
  - ◆ Interoperability Requirements
- ◆ **Product Vendors Need To Understand These Requirements (and Provide What Is Needed)**
  - ◆ Security Software Vendors - Challenging Yet Quite “Do-Able”
    - ◆ *Code Rewrite*
    - ◆ *Generally Not A Lot Of Time*
  - ◆ Chipmakers - Challenging and VERY Expensive
    - ◆ *Design and Spin A Chip*
    - ◆ *Can Take Years (And Cost A Lot Of Money)*



# Abundant Low-Hanging Fruit Or Nothing At All

- ◆ **Chipmakers Are Only Interested In High Volumes**

- ◆ 5 Million Units Is A Small Number
- ◆ 50 Million Units Is Worth Discussing
- ◆ Margins Are Very Slim

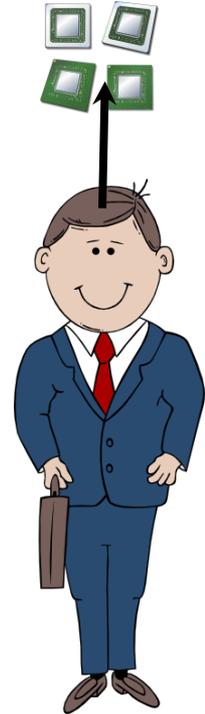


- ◆ **Product Line Centric Approach**

- ◆ Chipmakers Sell Chips Via Product Lines
- ◆ Sales And Marketing Focus On Their Own Product Lines
- ◆ Want To Sell What They Already Have
- ◆ Can Be As Competitive Internally As Externally
- ◆ May Tell You “I Can Put You In Touch With The Right Group”, But Don’t Hold Your Breath

# Product Line Sales

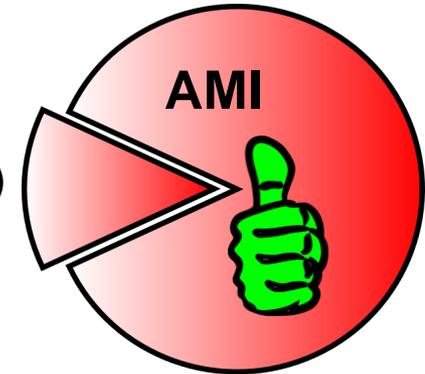
- ◆ Sales Groups Are Frequently Very Product Line Specific
- ◆ Higher Profit & Revenue Product Lines Emphasized
- ◆ Not Always What Is Best For The Customer (But Can Be Close)
- ◆ Security Capabilities Can Vary Dramatically (How Will You Know?)



# What Looks Absolutely Delicious To Chipmakers ?

- ◆ **AMI (Specifically Smart Meters)**

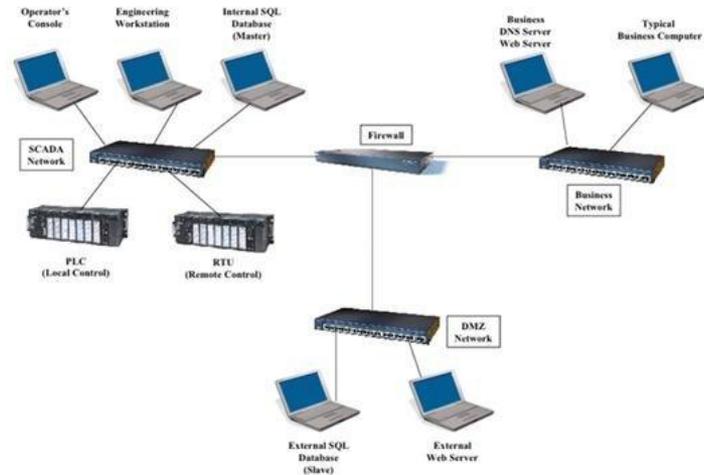
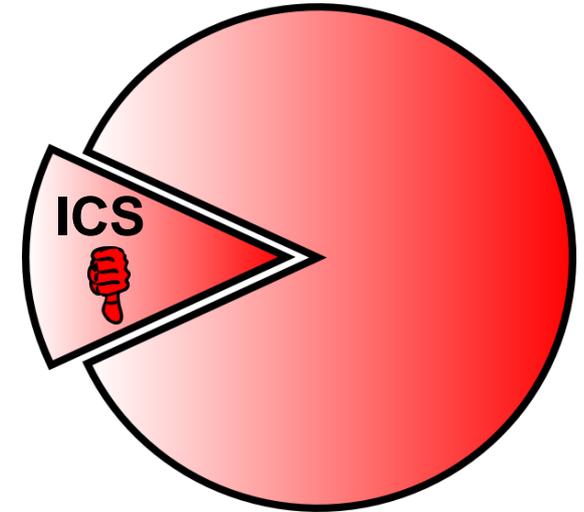
- ◆ Lots Of Volume
- ◆ Existing Product Lines Seem To Fit The Bill (Close)
- ◆ Active Sales Process Of COTS Products
- ◆ Good Idea Of Life Cycle



# What Looks Less Delicious To Chipmakers ?

## ◆ SCADA/ICS (Energy Industry)

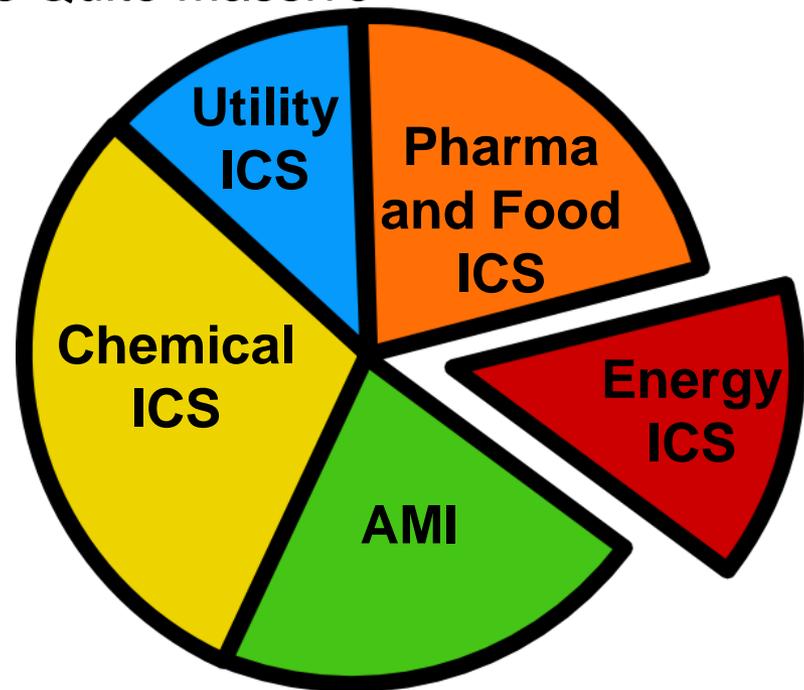
- ◆ Less Volume
- ◆ Existing Product Lines May Or May Not Work
- ◆ No Sales Process For Security Products
- ◆ Unknown Or Very Long Life Cycle
- ◆ Service Level Requirements Very High



# The Real Opportunity

- ◆ ICS Is So Much More Than Energy
- ◆ AMI Market Is Big...But So Is ICS Market
- ◆ Collectively The Opportunity Is Quite Massive

**These Are Just Some Examples**

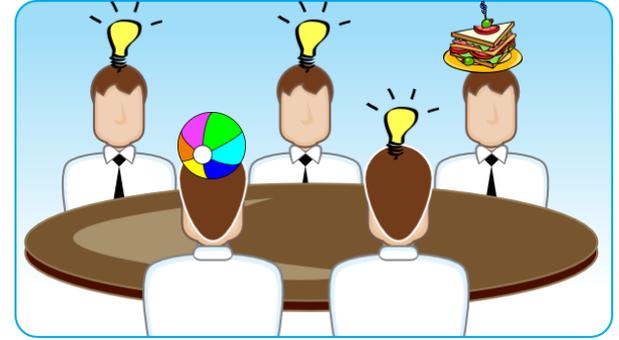


# What Needs To Happen ?

- ◆ **Bring Everyone To The Table**

- ◆ Chipmakers
- ◆ Software Vendors
- ◆ Hardware Vendors
- ◆ Industries (Utilities, Manufacturing, Etc.)

**This Includes AMI !**

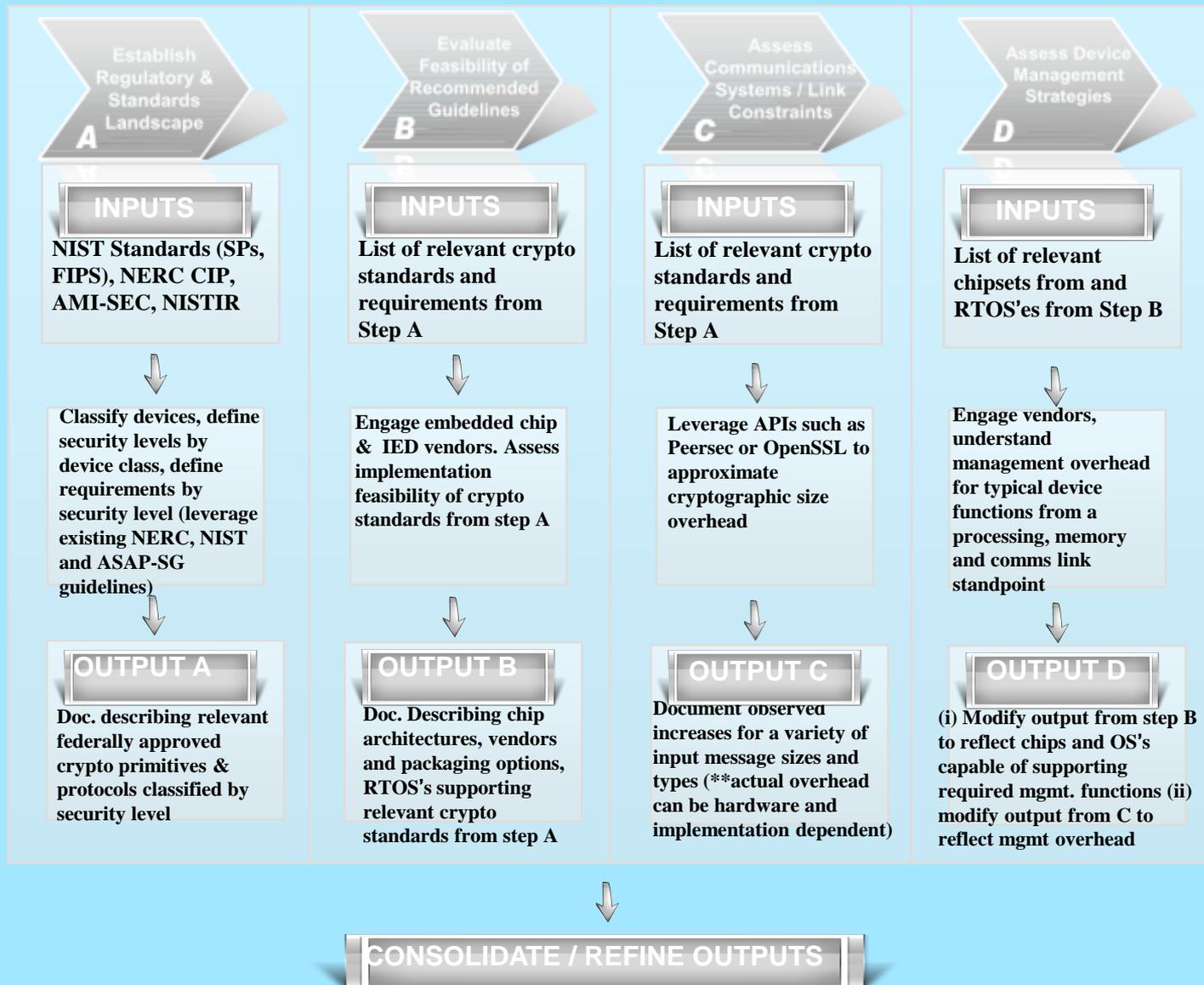


- ◆ **Try To Reach A Consensus Of What We Need To Build**

- ◆ Specific Requirements
- ◆ Constraints (Power, Temperature, Environment, Etc.)
- ◆ Availability
- ◆ Cost

**Don't Spend Too Much Time Re-Hashing High Level Requirements! Get To The Use Case & Application Level.**

# Input and Output Flow Example



# What Are The Benefits ?

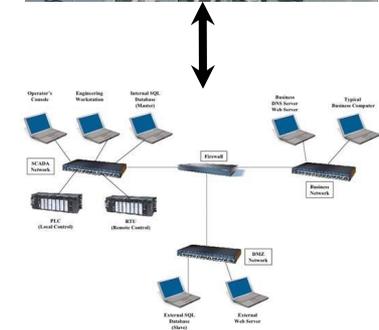
- ◆ **Interoperability Between ICS Systems (and AMI Systems)**

- ◆ Common Protocols
- ◆ Straightforward Integration
- ◆ Mutual Understanding



- ◆ **Lower Costs**

- ◆ No Guessing On The Part Of Chipmakers
- ◆ Economy Of Scale
- ◆ Competitive Marketplace (More Choices)
- ◆ Lower Cost To End Customer



# Thank You !

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