

SCTE CABLE-TEC
EXPO'13
OCTOBER 21-24 / ATLANTA, GA

ADD BRAIN CELLS TO YOUR HOME

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AGENDA

- ▶ Smarten your home in 3 easy steps!
 - ❑ Sensors
 - ❑ Intelligent logic
 - ❑ Motor control functions
- ▶ Optimal wireless technology
- ▶ Centralized Management
- ▶ Integrity of communications
- ▶ What's next?



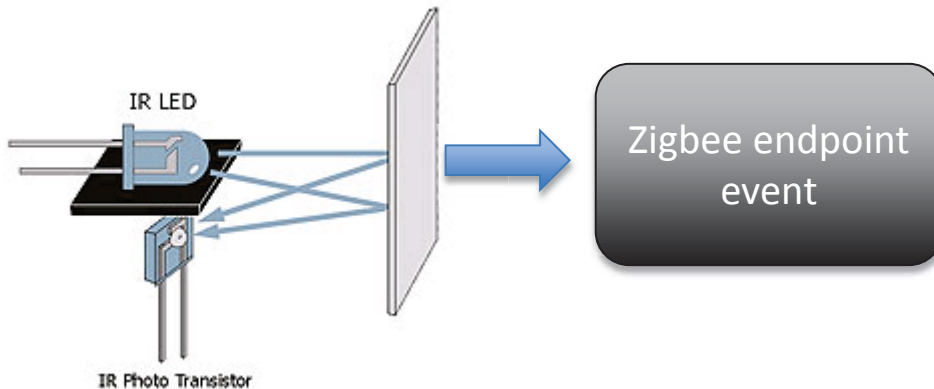
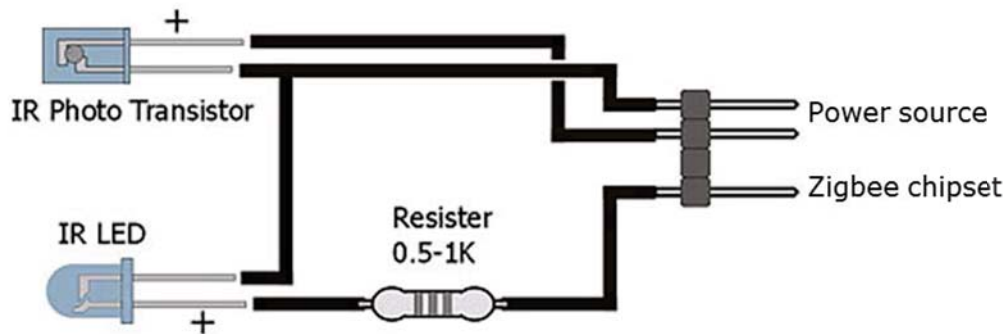
STEP 1 : Sensors

- ❑ Compile comprehensive requirements list using site walkthrough
- ❑ Incorporate all the sensing required
 - ❑ Motion detector, Door sensor, window sensor, temperature detector, humidity sensor, proximity sensor, people counter
- ❑ Choose the optimal wireless technology and controller functionality. If necessary build your own sensor

Criterion	Zigbee	WiFi	Bluetooth	Zwave
Power consumption	Very low	High	Medium	Very low
Network range	<100m	<100m	<10m	<100m
# of endpoints supported	65,535	65,535	7	232
Throughput	<250Kbps	~500 Mbps	1Mbps	40Kbps
Ease of development	Moderate	Easy	Easy	Moderate
Selection	Best choice			



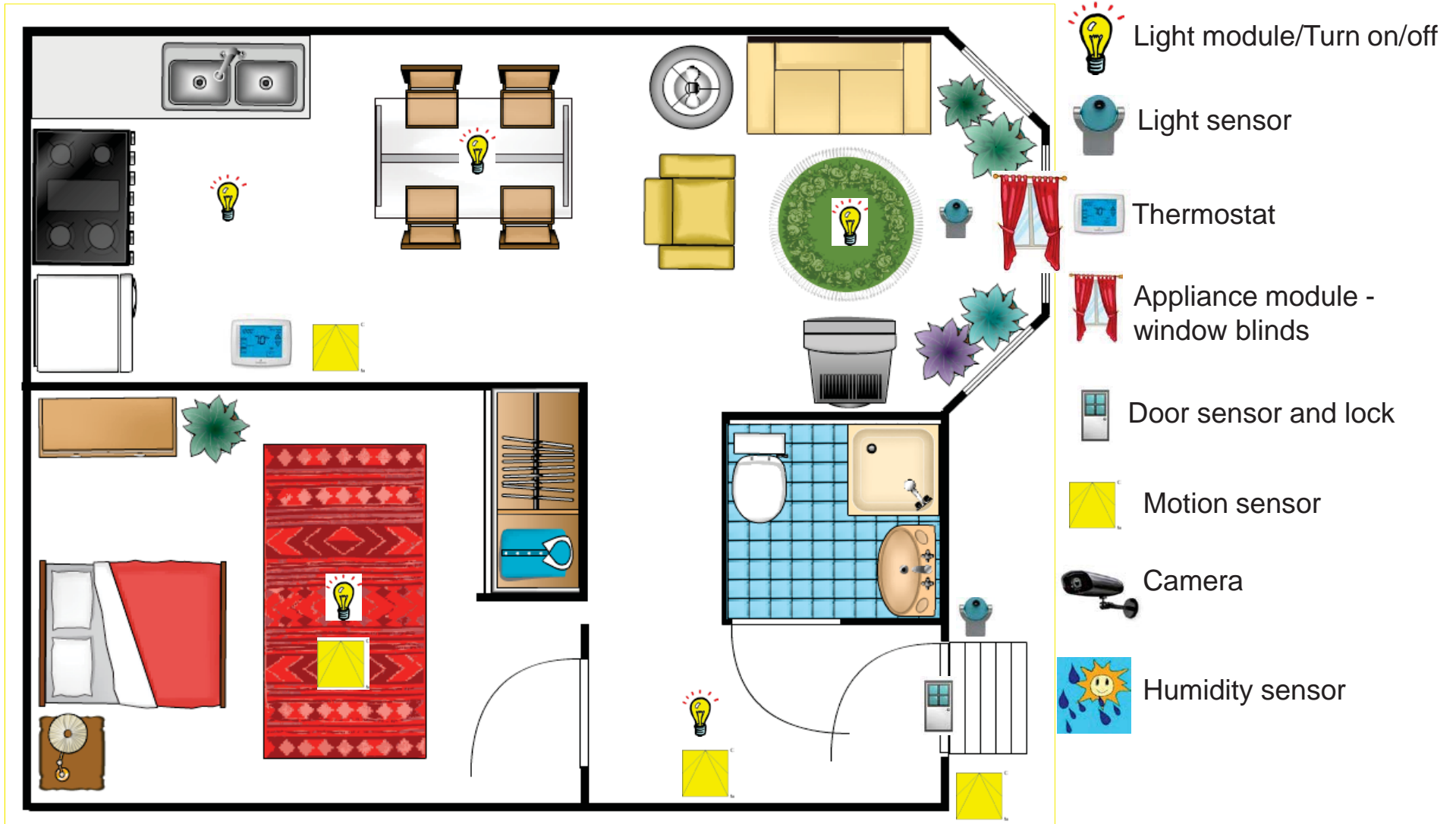
BYOS = Build your own sensor



- ❑ Building a custom zigbee sensor is feasible
- ❑ Consider reflective sensing technology used in motion sensors, proximity sensors, distance detectors
- ❑ Use of IR circuitry plus zigbee chipset in a clean packaging will create a custom sensor
- ❑ Zigbee chipsets require additional programming
- ❑ However, highly recommend pre-packed solutions due to ease of use, accuracy from calibration and overall standardization



Home Floor Plan



STEP 2: Logic aka rule management

❑ Cluster sensors into performing a logical action

- Example: NIGHT MODE
- Incorporates door sensors, lock control, light module and thermostat
- In night mode, rules ensure all doors locked, system armed, lights are off except bedrooms, temperature reduced to 68 degrees

❑ Build logic of IF THEN actions

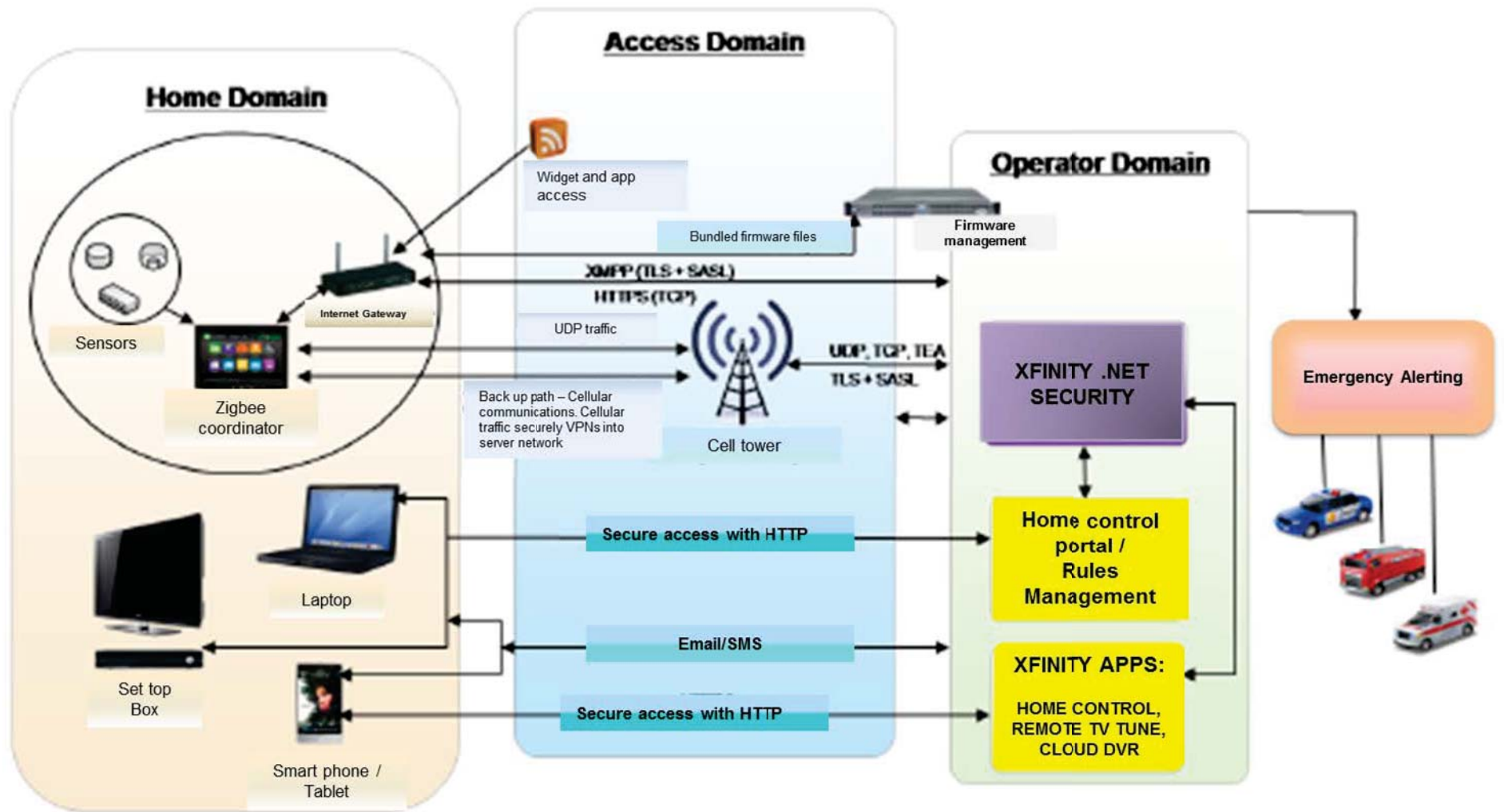
- Example: CAR GARAGE OPENER
- Incorporates proximity detector, garage appliance module, motion sensor
- IF the proximity sensor is detected within 20 feet or less THEN open garage. IF proximity detector is within 20 feet and no motion is noticed THEN close garage door.

❑ Time based or non-event based action

- Example: KID TRACKER
- Incorporates front door lock, motion sensor, Xfinity TV
- Between 3pm and 4pm, front door should unlock followed by motion in the hallway followed by Xfinity TV tuned to a kids TV network
- Upon non action, Alarm!



STEP 3: Centralized Management



Integrity of communications

*Ever heard the story of \$5000 toilets
that were hacked?*

Xfinity remote management solution offers a three tier level of security:

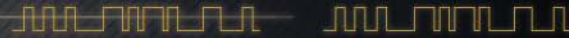
1. Logging into web portal or mobile portal is protected by Comcast username and password protection
2. All Zigbee communication is encrypted using 128 bit encryption standard
3. Communication between homes and servers is embedded in TLS based security



What's next?

- ▶ TTYH! Talk to your home - Enables a subscriber to say a command into their mobile app or web browser and have the system perform the function.
- ▶ Affordability – Chipset Manufacturers and hardware providers to work out a more cost effective solution. Good sensors range between \$50 and \$300
- ▶ Potential frontiers for this technology include health management, age management, city planning etc.





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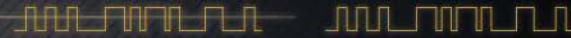
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References

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