The Future of Building Technology

Smart Buildings

Mazen Nour
SE Team Leader

Baud Telecom Company

Linking to the Future

BTC
Networks

Agenda

- **Current Business Model**
- **"Smart" in our life**
- **IP Life Ecosystem**

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Business Model

Life Style

- *Hyperconnectivity* — the number of devices and applications connected to the network far exceeds the number of people using the network.
- Multiple smart devices with *each person*: Iphones, ipod, 3Gphones, laptops, mobile TV, wireless game consoles...etc
- <u>Smart</u> devices used for *everything:* online shopping, online music, online medical consultation, asset & workforce tracking, communications...etc

Opportunities

- More connections with more human transactions – opens new fields of revenue
- Carriers offer new behaviour-based services to address various customer requirements
- Connecting *everything* to the network (phones, ipods, BMS, IPCCTV, laptops, TVs, gaming consoles, …etc)
- maximizing ARPU (Average Revenue Per User) by offering new services:
  - Location-based services
  - Multimedia communications
  - Online applications to maximize user airtime

Challenges

- bandwidth-hungry applications like video, gaming, music...etc
- different devices & applications need different levels of authorization, authentication, security, and OAM
- privacy concerns where everything is connected and possibly tracked
- *right systems* — end-to-end networks that can seamlessly handle, adapt, and integrate communications across the entire spectrum of networks, devices, and traffic types, with the reliability and quality of experience. *It needs carrier-grade experienced vendor*

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"Smart" in our Life

SMART

"Smart" in our Life

Control every light from your phone.
Adjust brightness for any bulb

Any bulb, any color.
Match your mood or your decor.

Automatic on and off.
Your lights come on when you get home
and switch off when you leave.

"Smart" in our Life

Multiple Panes — 1990
Switchable Glass — 2012
Smart Window - Integration with HVAC & Lighting — 2020

Source: Frost & Sullivan

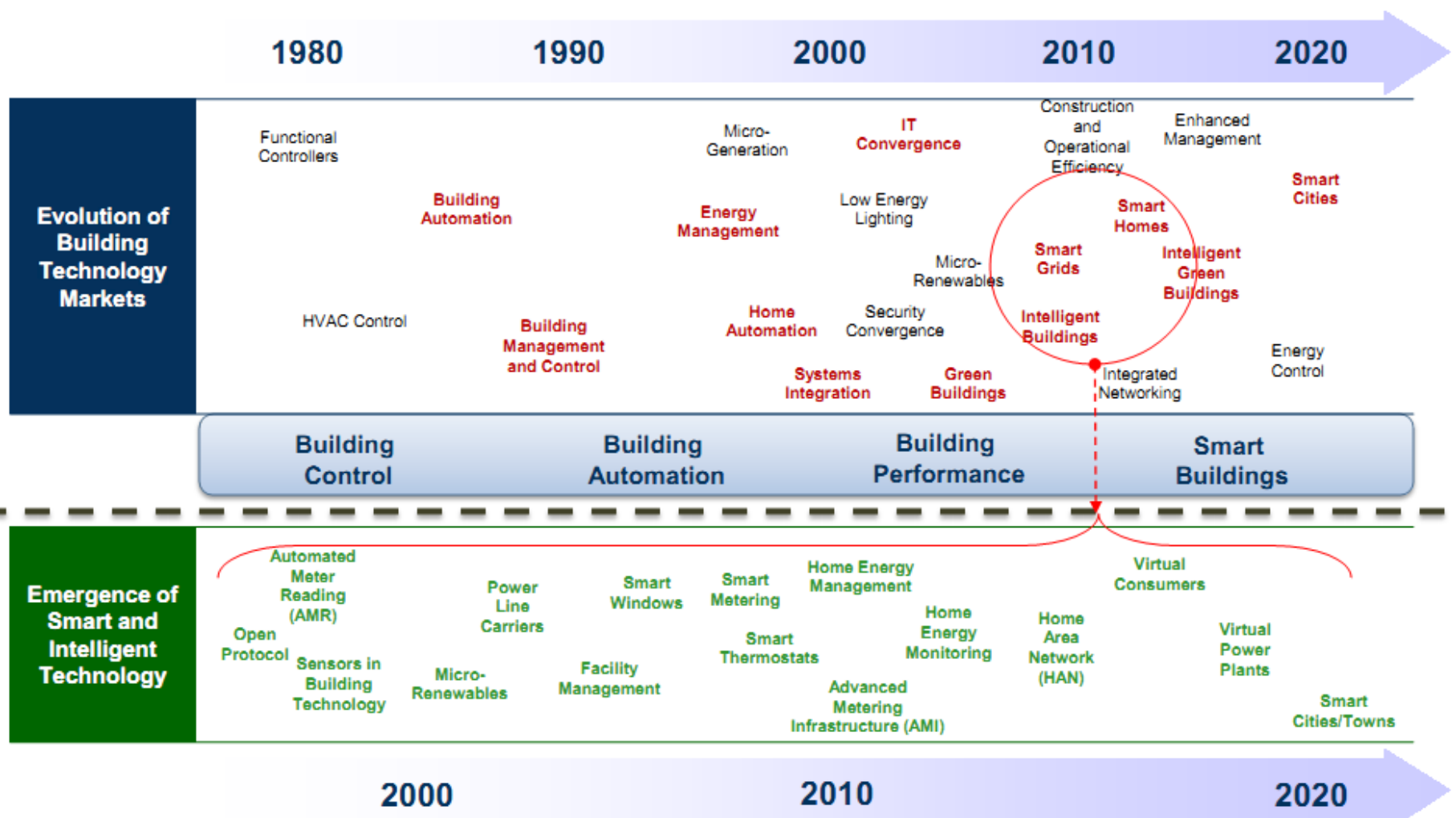# "Smart" in our Life

The whole picture

Innovation is under way

Living Space   **Work Space**   **Community Space**

1 **Automation**
Connectivity
Comfort
Energy Cost

Smart Home

2 **Integration**
Measurement
Control
Optimisation
Environmental Cost

Smart Building

3 **Intelligence**
Digital Infrastructure
Information
e Mobility
Sustainability
Safe Cities

Smart Cities

Source: Frost & Sullivan

Progression Towards Smart Buildings

Source: Frost & Sullivan analysis.

Major Drivers and Restraints

Driver

- Development Of Smart Technologies
- Efficient Energy use
- Comfort
- Return on Investment

- High Initial Investment
- Expertise
- Awareness

Restraint

The Message

Growth of the building technology industry will center around the integration of ICT in buildings – Smart technologies are the key demand segment for growth.
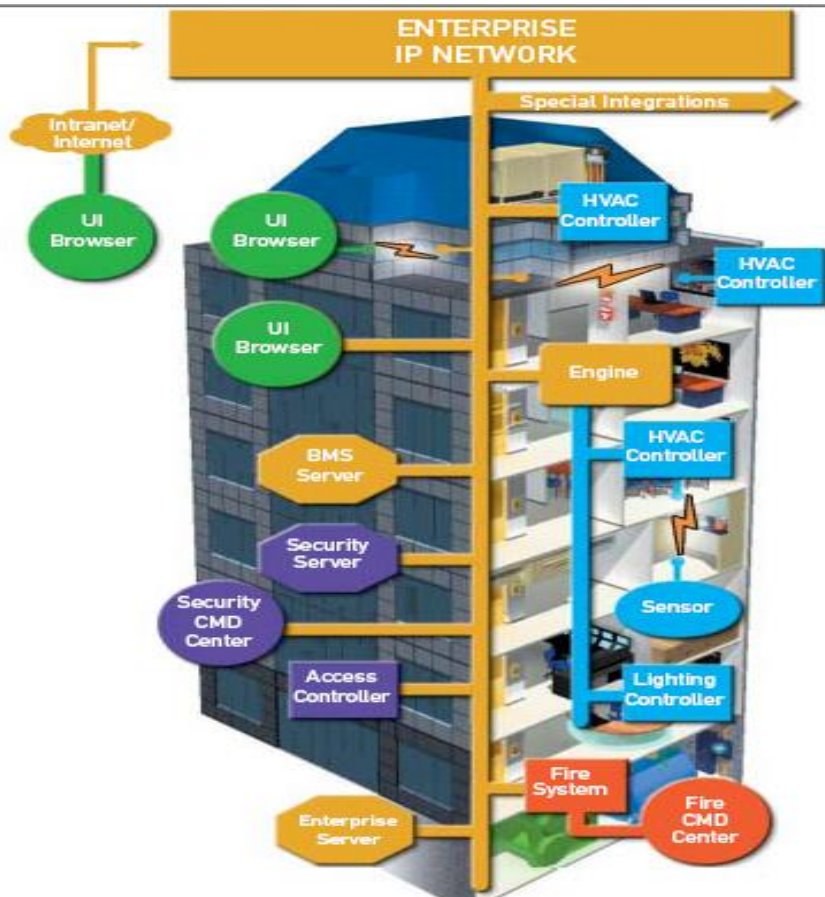
Smart buildings will imply integration of building services on a single platform – Building automation and home automation will provide this platform for non residential and residential buildings respectively

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IP Life Ecosystem

simplifying the environment

Standard Core IP Network

supports all types of communication and business requirements

- One secure communication network
- Converged
- Multimedia rich
- Mobility enabled

Lowers Costs through Simplicity

- Lowers capital and operating costs
- Increases productivity of infrastructure managers
- Allows for growth in real-time (invest when needed, not before)

IP Life Ecosystem

- The ecosystem provides the following services in native IP transport format

  - data transfer

  - Multitenant business telephony, VPN, multimedia, & security

  - Hospitality & messaging

  - TV & online entertainment

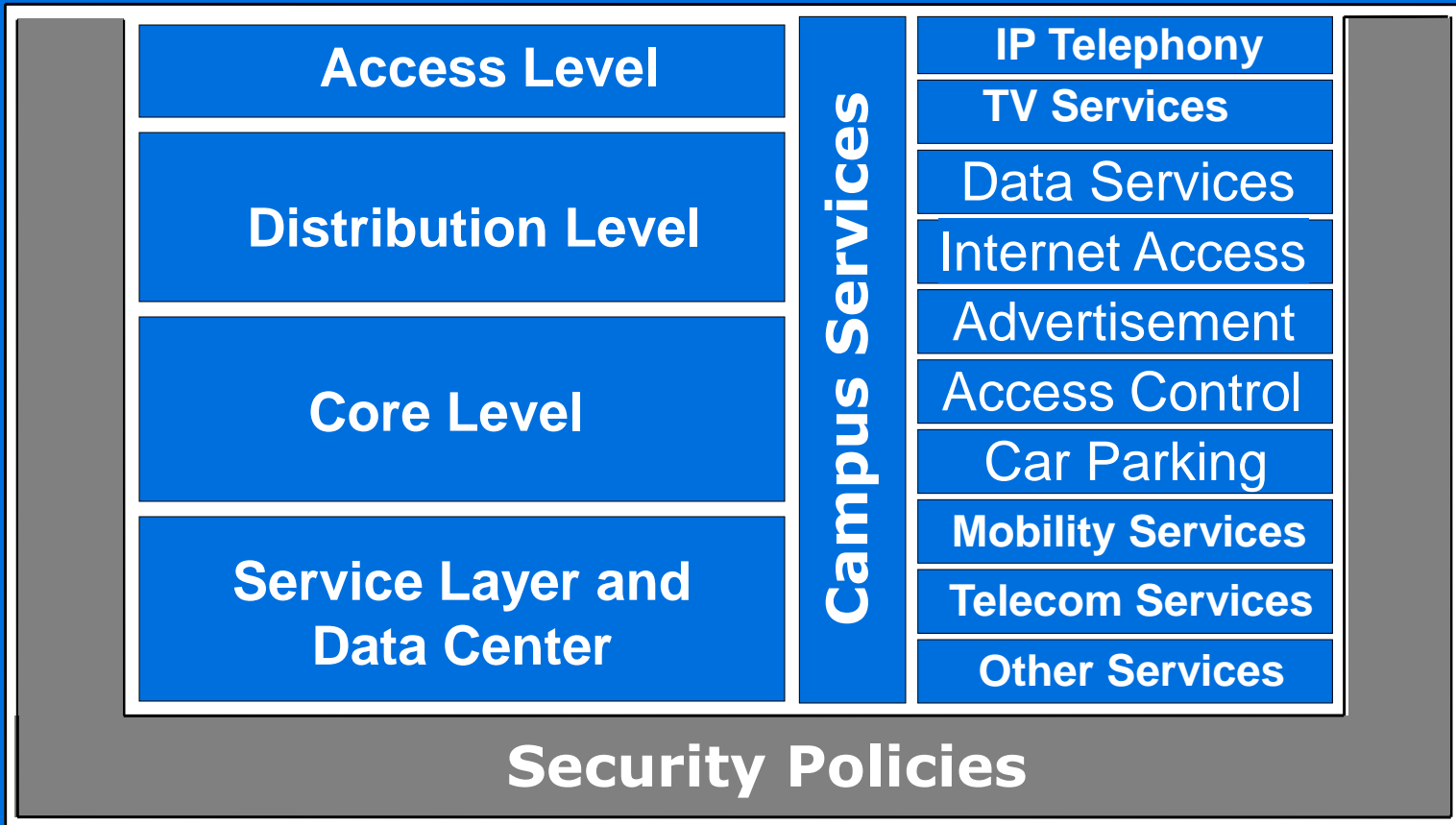 - Wireless broadband internet

IP-Life Ecosystem

IP-Life Ecosystem
Services Spectrum

Public Safety	**Health Care**	**Internet**	**Public Address**
IPTV VOD	**Billing System**	**Facility Mgmt**	**IP CCTV**
RFID	**Car Parking**	**IP Telephony**	**IP Metering**
ATM/POS	**BMS**	**Fire Alarm**	**Access Control**

IP-Life Ecosystem
Service Architecture overview

Management

Access Level

Distribution Level

Core Level

Service Layer and Data Center

Campus Services

IP Telephony

TV Services

Data Services

Internet Access

Advertisement

Access Control

Car Parking

Mobility Services

Telecom Services

Other Services

Security Policies

IP-Life Ecosystem: Services
Billing Service Architecture

▪ All Services on a single bill/receipt

- ▪ **Security**
- ▪ **Monitoring**
- ▪ **Auditing**
- ▪ **Accounting**
- ▪ **Authorization**
- ▪ **Administration**

Billing System

Billing Middle Ware

| ERP System | IP Telephony | Internet | IPTV / VOD | Network Services |
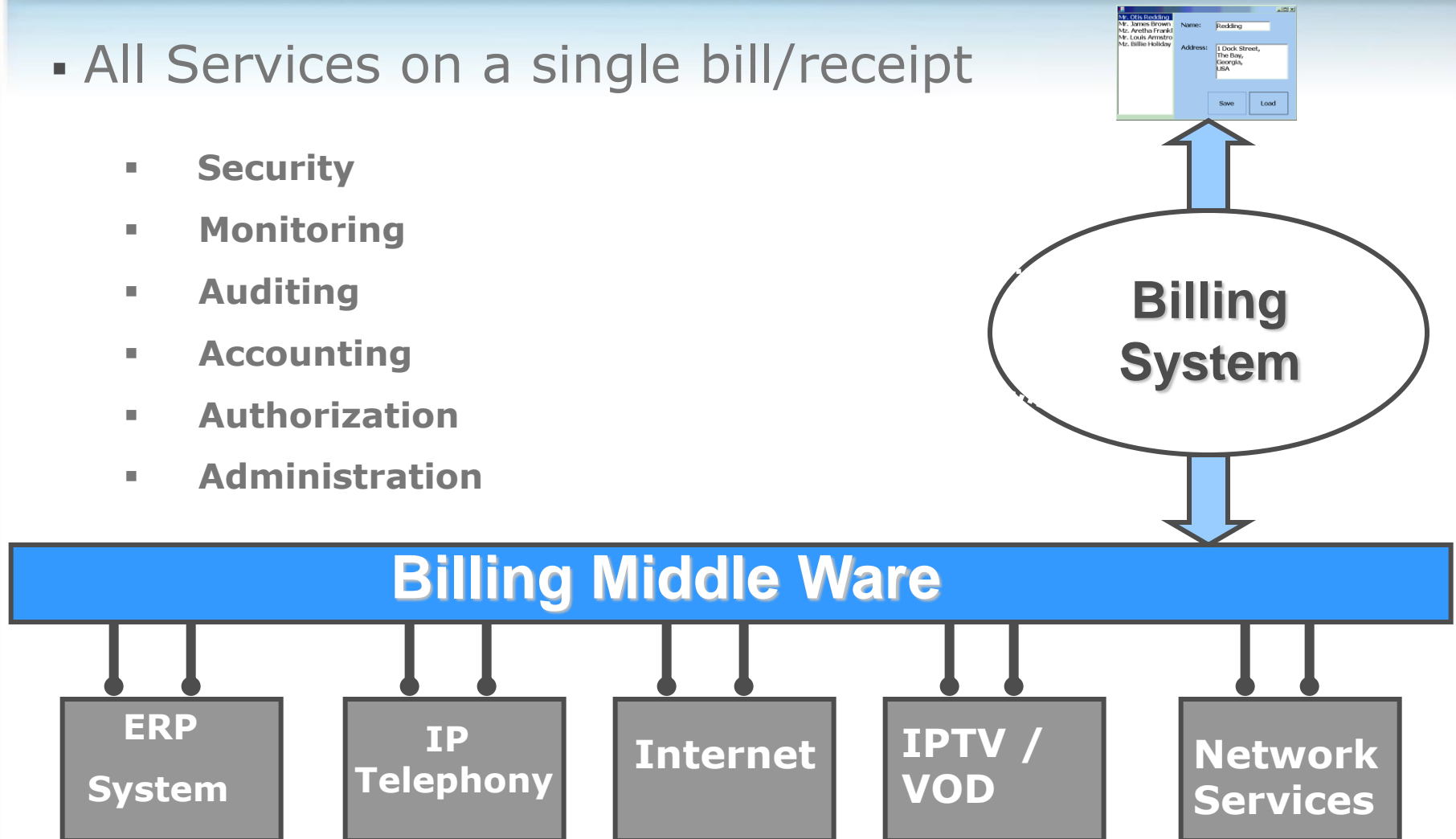
IP-Life Ecosystem service offering

Smart Building

Based on

Service Oriented Architecture
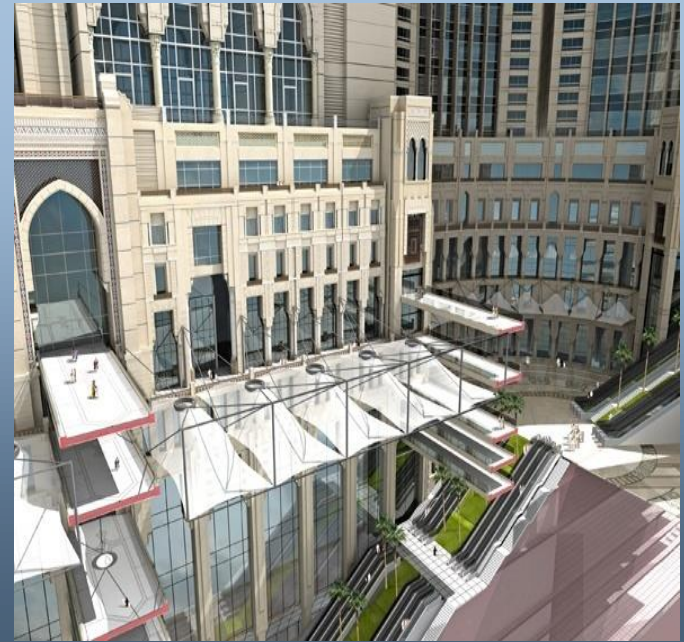
IP-Life Ecosystem
Importance of Services

1	Services focused on **Business Requirements**
2	Services that **Generate Revenue**
3	Services that **Maintain Revenue**
4	Services that **Lowers OPEX**

The Last Word

Pillars of a successful Smart Building Solution

Thank You

Q & A