Cabling Infrastructure

Presented by:
Jim McGlynn PE
RCDD/LAN Specialist
O'Neal/Gaj
A telecommunications and technology consulting firm that specializes in the hospitality industry.

Cabling Infrastructure

Program Discussion:

- *Goals*
- *Technology Definitions*
- *Infrastructure Design Basics*
- *Cabling Infrastructure Hazards to Avoid*

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Introduction:

Professional Electrical Engineer
Licensed in 22 States in USA

BICSI Certified
(Building Industry Consulting Service International)

15 years of experience in the commercial industry designing data centers for major corporations

Director of Technology Cabling Infrastructure Design Services for 4-years with O'Neal/Gaj

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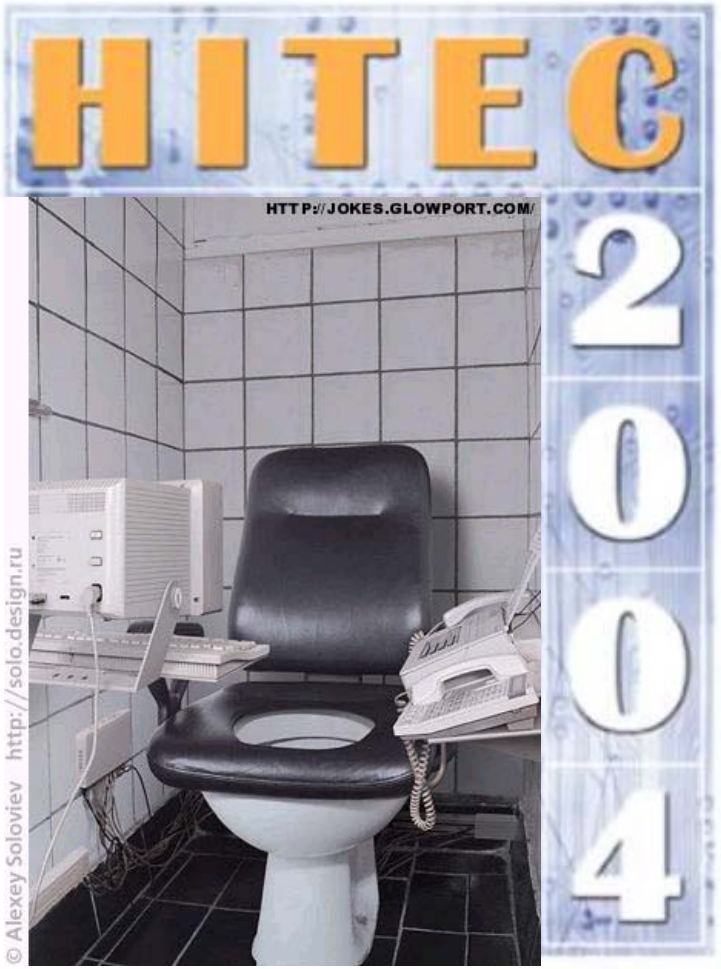

Goals:

Briefly Cover the Fundamental Cabling Design Issues

Present Real World Good and Bad Examples to Learn From

Walk Away With Some New Insight to the Cabling Issues and Solutions

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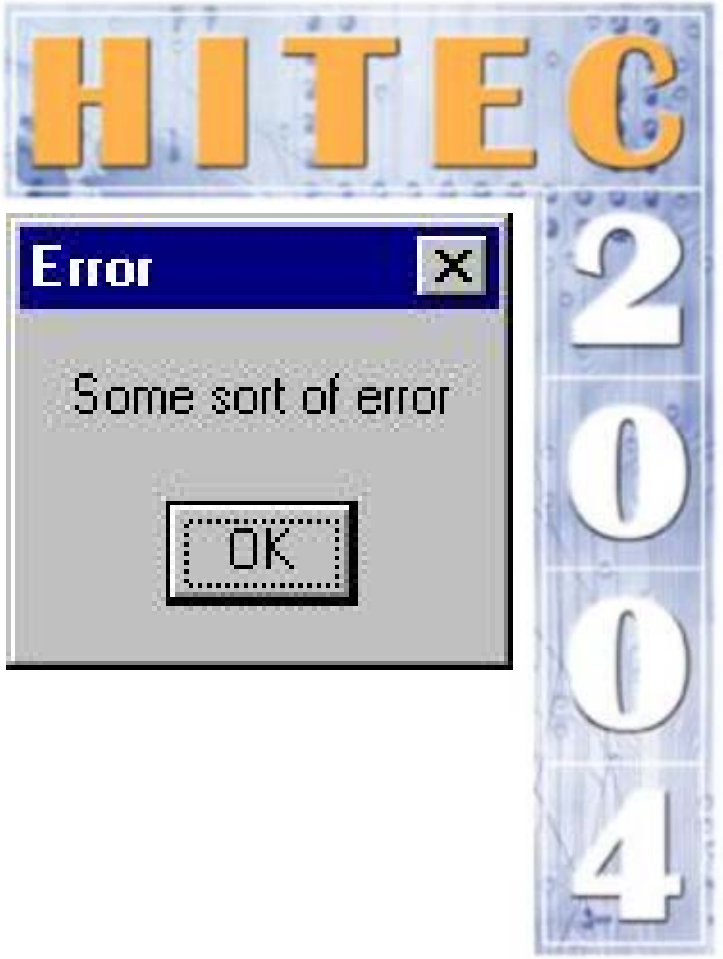

Technology Reliability:

As we are increasingly dependant on our electronic Communication Systems, we are now much more vulnerable to revenue losses due to minor glitches

Guest Management Systems, Phones, Voicemail, Email are can be easily shut-down from a relatively minor system failure.

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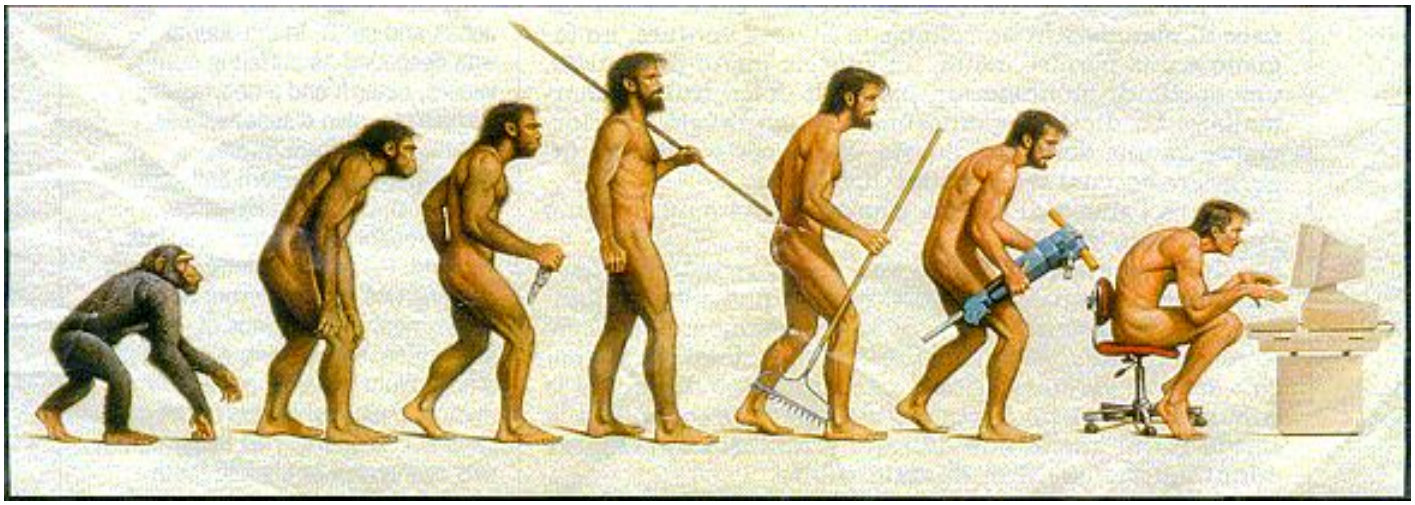
Technology Upgrade:

A unique opportunity for your IT department to completely shut-down business operations in the name of progress and efficiency.



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Technology Definitions:

- **BICSI** – Building Industry Consulting Service International
- **RCDD** – Registered Communication Distribution Designer
- **DEMARC** – Building Demarcation Point
- **Net-Pop** – Network Point of Presence
- **RJ** – Registered Jack (RJ-11 or RJ-45)
- **Fiber Optic** – Glass Stranded Cabling
- **Cat.** – Category of Copper UTP Cabling (5E, 6 & 6E)
- **LAN** – Local Area Network
- **MDF** – Main Distribution Frame (PBX ROOM)
- **IDF** – Intermediate Distribution Frame (Equipment Closet)

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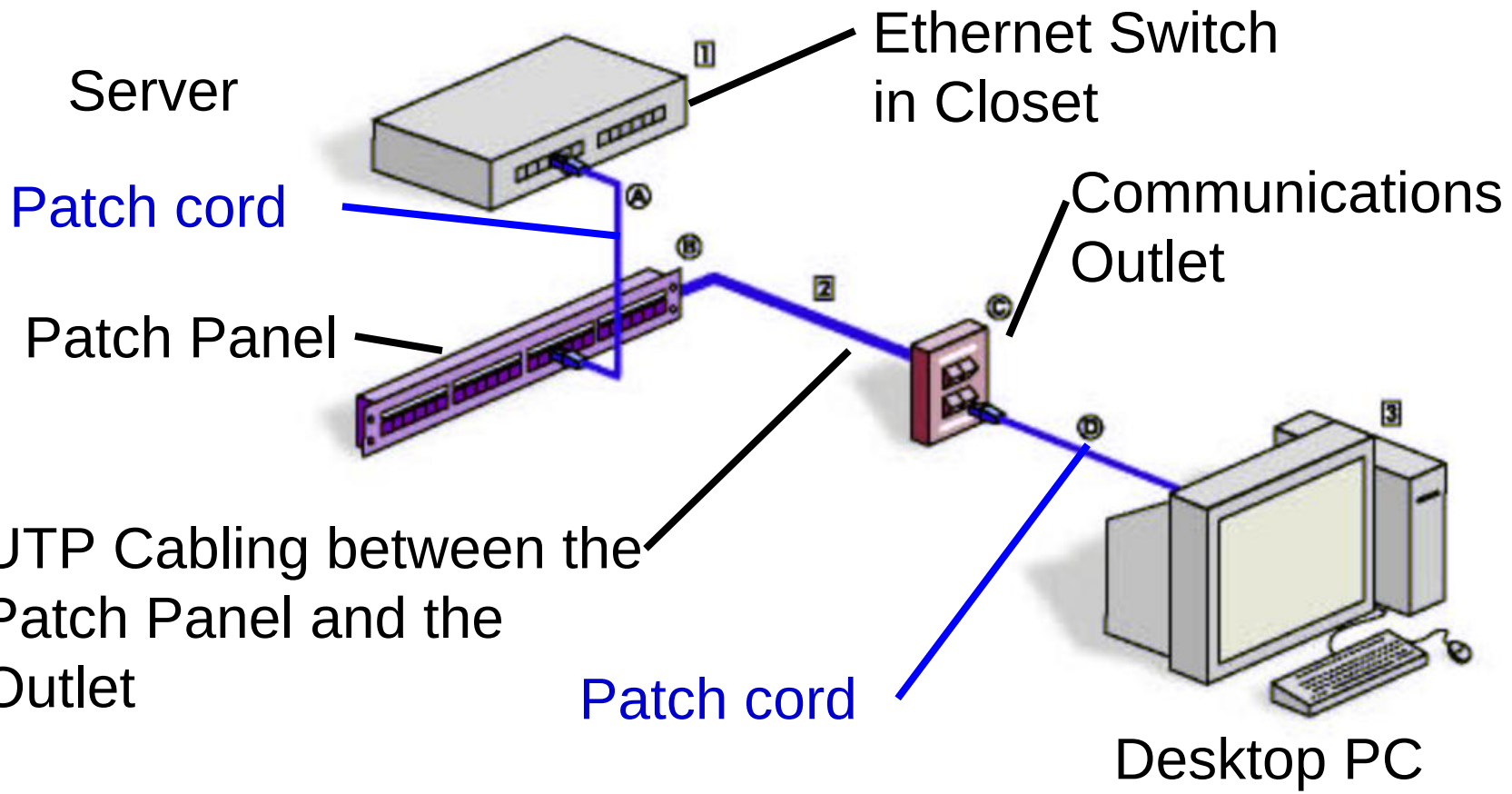
Traditional Wired LAN Network



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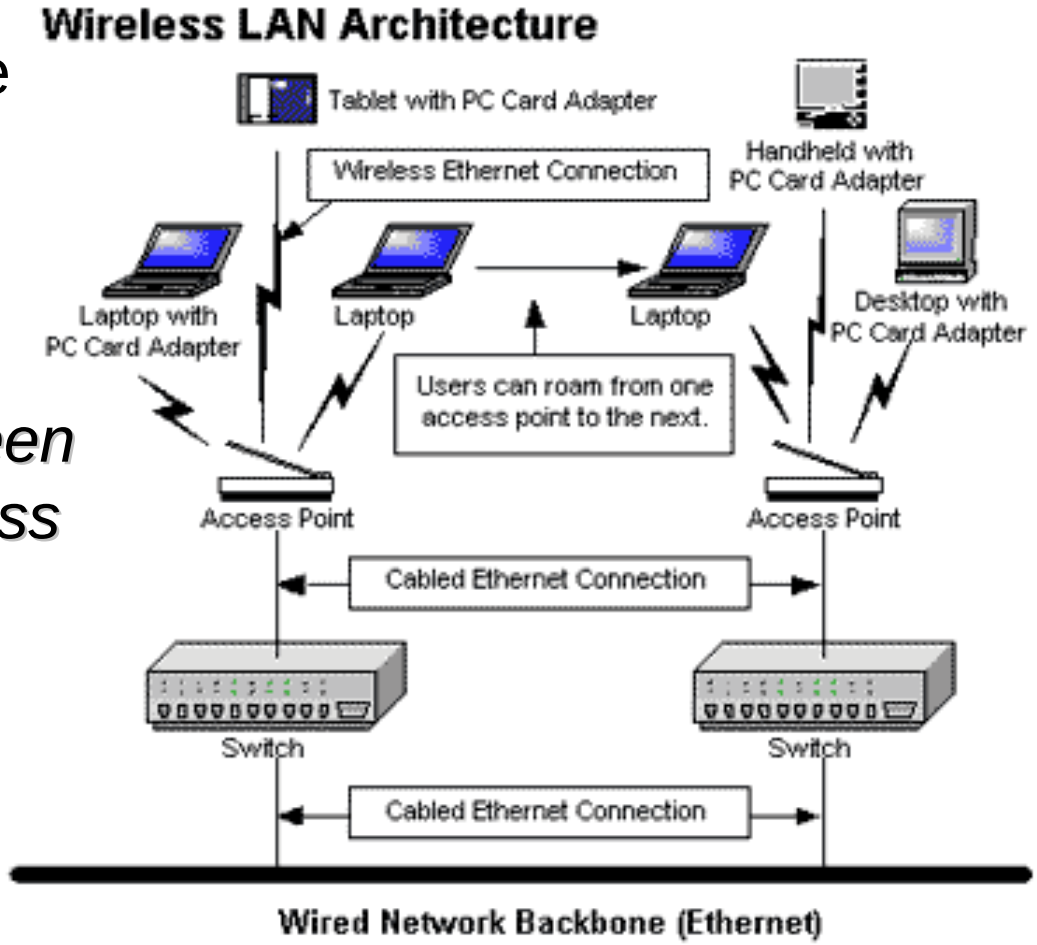
Wireless LAN Components:

LAN components are the same as a wired LAN Except for one thing:

A wireless link between the PC and the Access Point (AP)

Wireless Networks are NOT Wire-LESS



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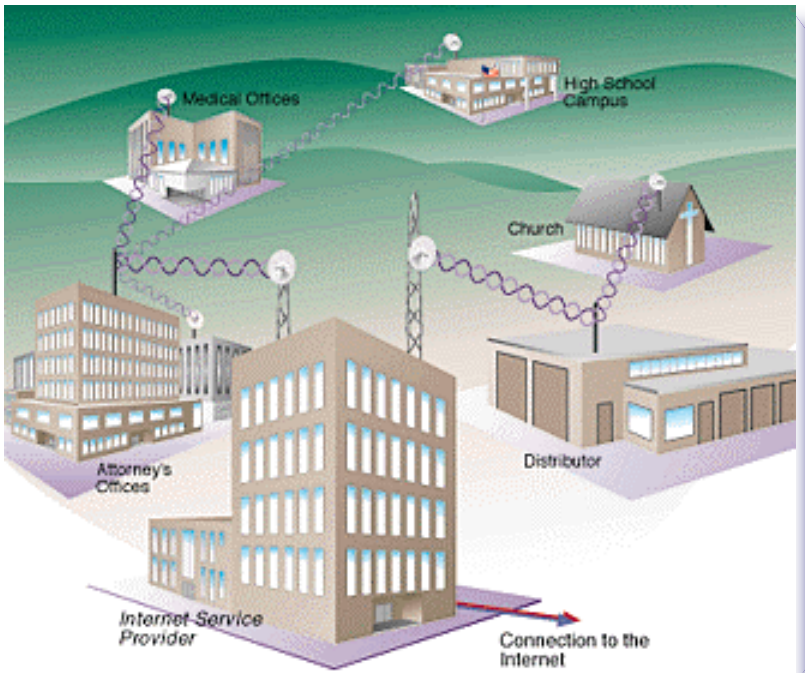
Campus Wireless Applications:

Wireless WAN's (Point to Point)



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Infrastructure Design & Construction Basics

1. Equipment Room “SPACE” Planning; ***MDF/IDF location layout***
2. Vertical Backbone Connectivity Diagram; ***Copper/Fiber Pair Counts***
3. Conduit Pathway Design; ***Conduit and Sleeve Routing***
4. Environmental Planning; ***MDF/IDF Electrical Power & Cooling***
5. Horizontal Cabling Design; ***Guest Room, Pre-Function, B of H, etc.***
    - *Choose Category 5E or Category 6*
    - *Choose HSIA to Guest Room Scheme*
6. Coordinate with Team; ***Developer, Architect, Engineer, etc.***
7. Solicit Bid & Bid Review; ***Labor Only Quotes***
8. Project Close-Out; ***Punch List and Cable Plant Testing***

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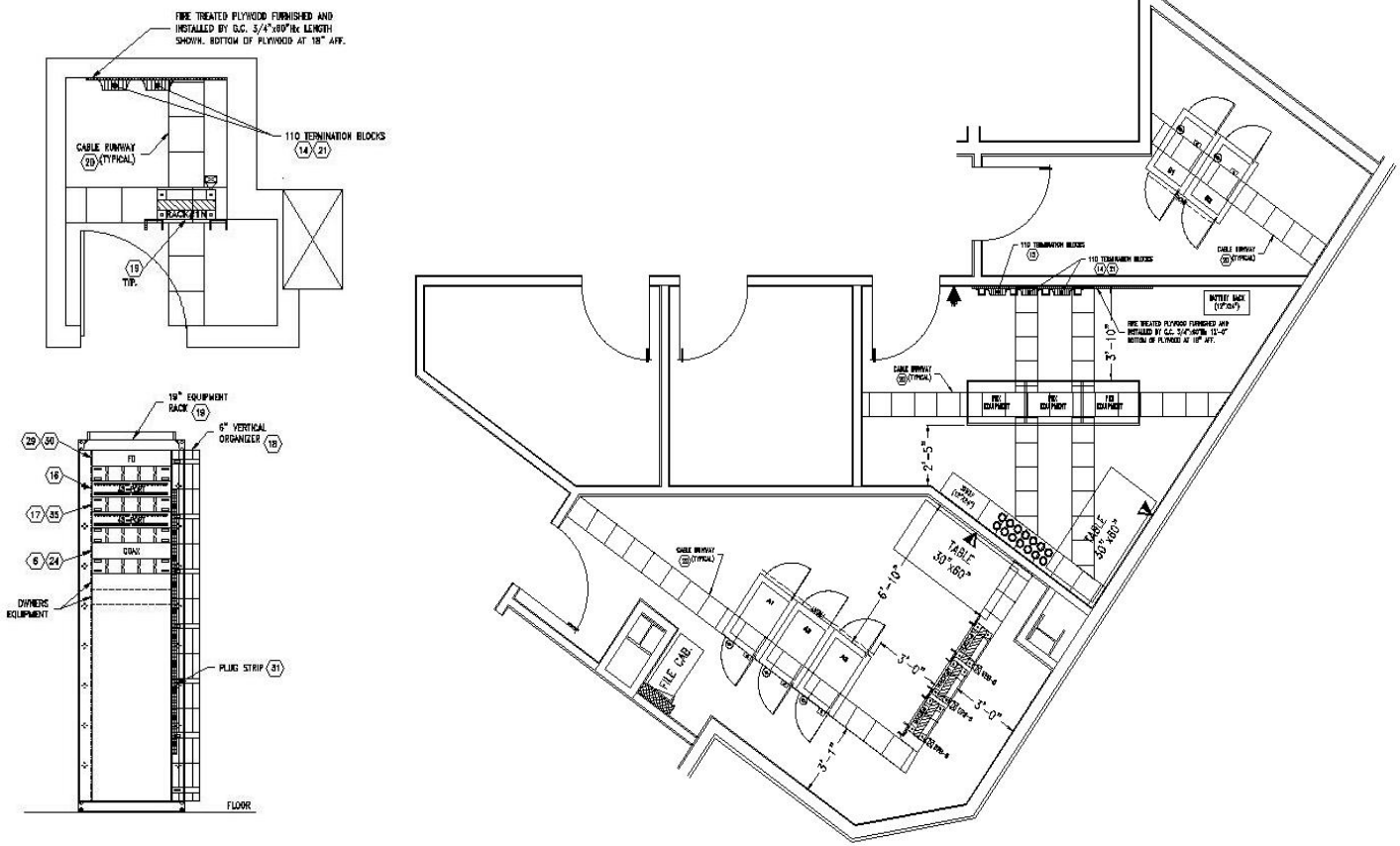
Infrastructure Design & Construction Basics

Equipment Room “SPACE” Planning; ***MDF/IDF location layout***



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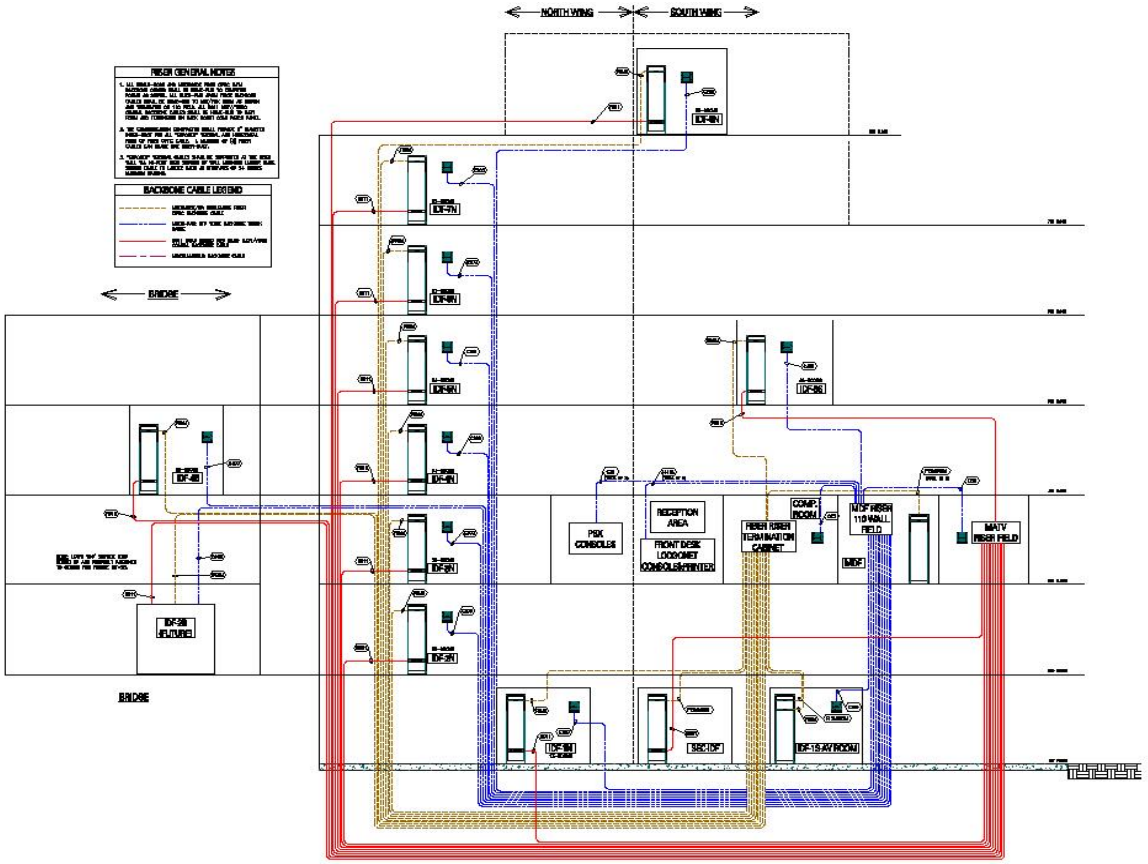
Infrastructure Design & Construction Basics

Vertical Backbone Connectivity Diagram; ***Copper/Fiber Pair Counts***



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Infrastructure Design Basics

Conduit Pathway Design; ***Conduit & Sleeves***

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Coordinate conduit needs for technology with:

- *The Executive Architect*
- *Electrical and Mechanical Engineer*
- *AV Consultant / Contractor*
- *POS/PMS Contractor*

This coordinated effort results in an overall cost saving when all technology needs are addressed as a whole.

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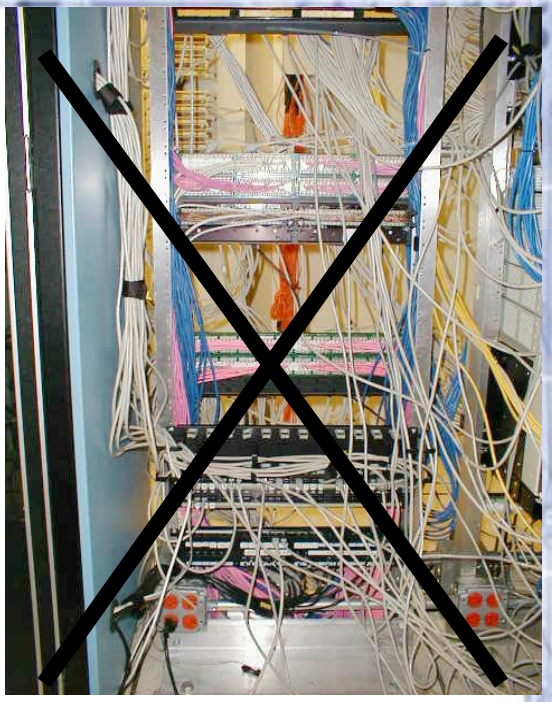
Infrastructure Design Basics

Environmental Planning;

MDF / IDF Electrical Power & Cooling

Work with the electrical / mechanical engineer to establish electrical and environmental requirements.

Eliminate the
Un-planned *Changes & Adds*



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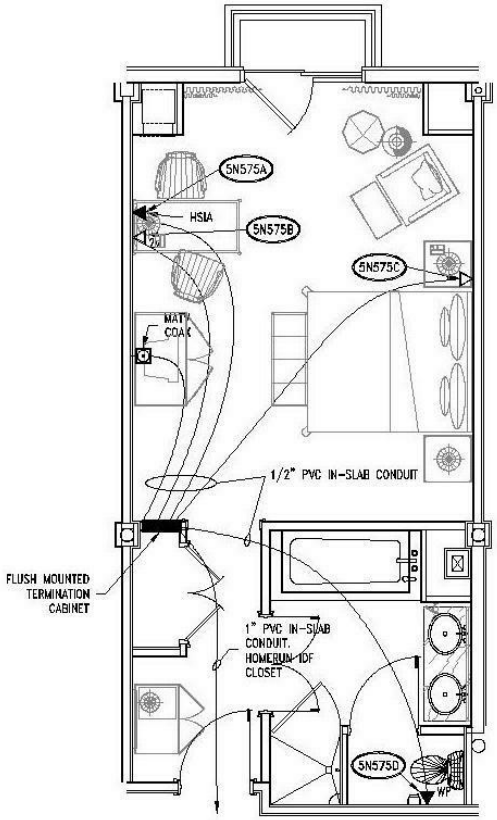
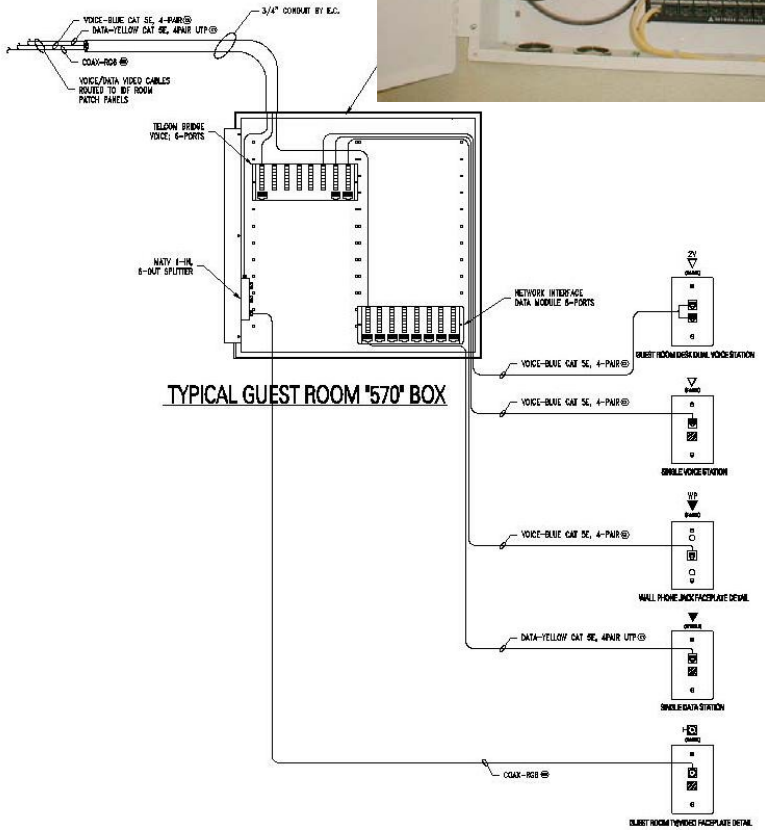
Infrastructure Design Basics

Horizontal Cabling Design; ***Guest Room***





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Infrastructure Design Basics

Horizontal Cabling Design; ***HSIA Options***

Hardwired Ethernet – Dedicated UTP Cabling from a closet to the guestroom

Cable Modem – Sharing of the Entertainment System Cabling

WEB TV – Optional TV Based Internet Access to view the WEB and access email

Long Range Ethernet / DSL – Limited Bandwidth solution, runs on existing, spare phone cabling

Wireless LAN (Wi-Fi) – Radio communication from a PC to an Antenna that is wired to a closet.

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Infrastructure Design Basics

Horizontal Cabling Design; ***Cat-5E vs. Cat 6.***

Cat. 5E – Approved in 1990's, as an improvement to the first industry standard for category 5 cabling. Supports 100 Mb/s speed.

Cat. 6 – Approved in June of 2001, to support 1000 Mb/s data speed. (10-Times Cat-5E). Now the Defacto commercial industry standard. Proven to support hi-speed transmission applications like streaming video, gigabit Ethernet LAN equipment.

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Infrastructure Design Basics

Final Design
Approval from the
Owner's Rep.

- Owner Drawing Review
- Confirm room requirements with Architect
- Confirm Numbering Plan with Management

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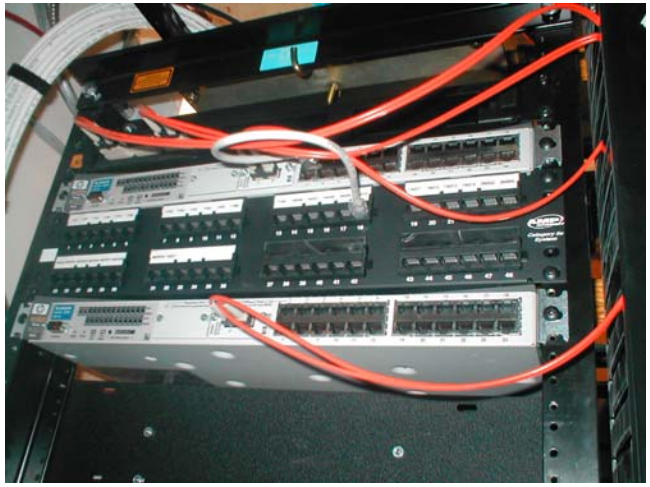
Cabling Hazards

Data Cabling Splice



Per TIA Standards – you cannot splice data cables.

You can add (1) jack-to-jack Consolidation point

(TIA – Telecommunications Industry Association)

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Cabling Hazards

Data Cable Over-LENGTH

Per TIA Standards – the maximum length of a data cable is

***295-feet** from patch panel to outlet*

Equipment Room Size and Location are critical to meet this distance requirement

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Cabling Hazards

Do Not Hire Un-Qualified Installers

BICSI Trained installers understand the design limitations

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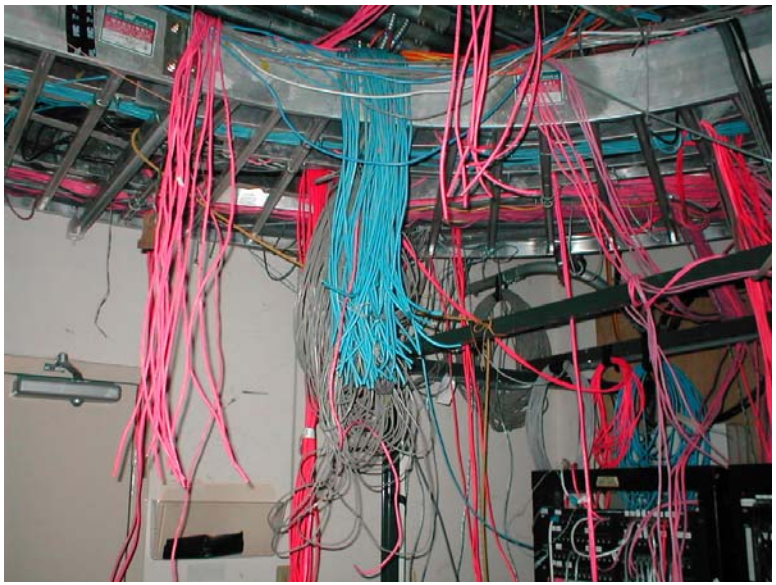
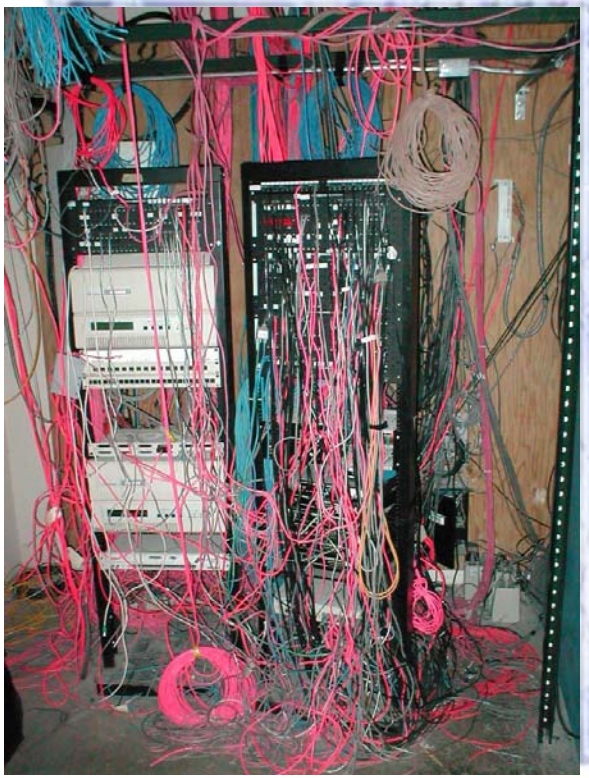
Cabling Hazards





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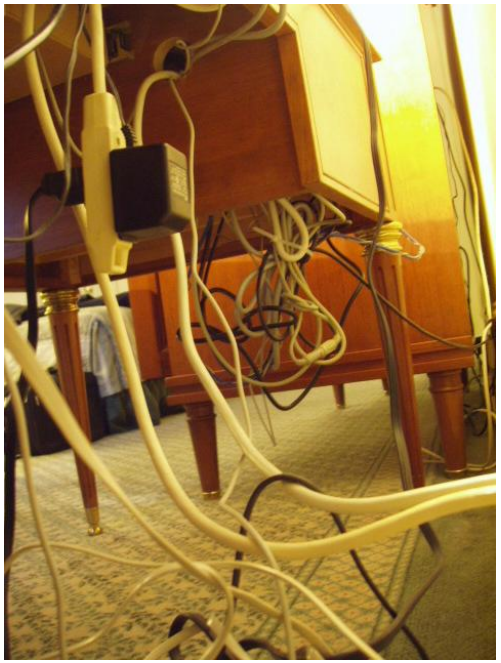

Do Not Route cabling around the base of the wall

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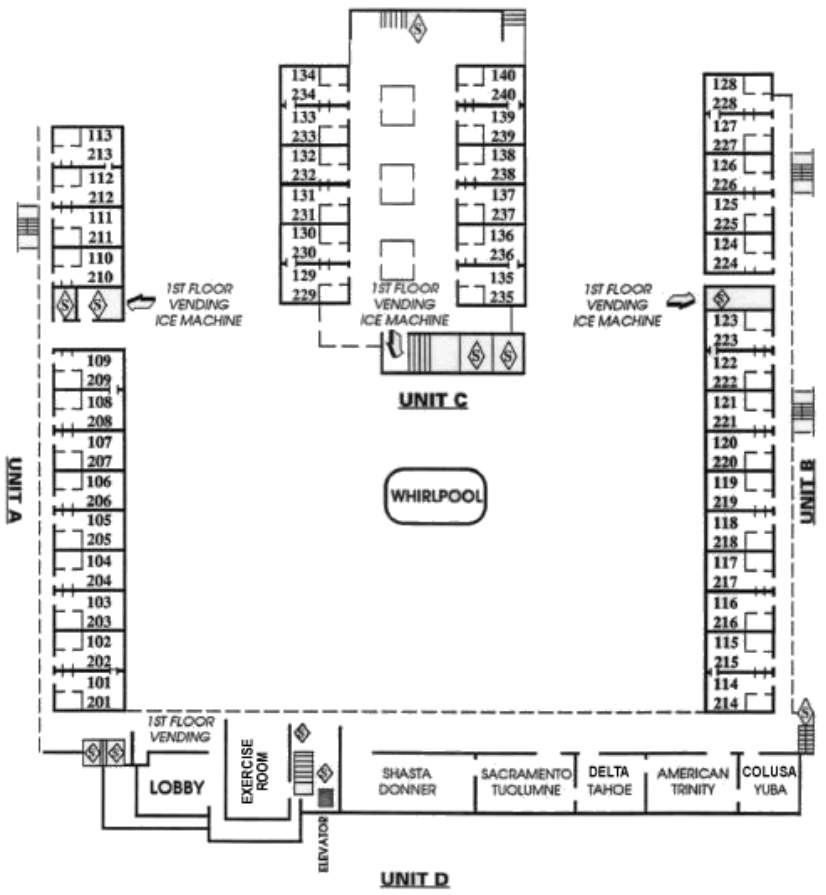
Cabling Hazards

Don't develop a renovation "phasing" plan without considering the cabling impact

Where is the cable termination break-off on the floor



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Cabling Hazards

Don't wait for construction to start before you plan the cabling

Architectural, Electrical and Mechanical Planning require coordination with Cabling

Investing in Infrastructure

Presented by:
Pam Burke
O'Neal/Gaj
A telecommunications and technology consulting firm that specializes in the hospitality industry.

Pam Burke , CHTP

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-17 years in the industry

-Opened 14 hotels from Hawaii to NYC to Key West

-Managed Capital Projects for large NYC Hotel

-Millennium Hotels for the last 12 years

-Joined O'Neal/Gaj three years ago

Investing in Infrastructure Highlights

1. Participate in the development of the Business Plan and Marketing Plan.

2. Provide a Return on Investment (ROI) that can be achieved with the least amount of risk.

3. Coordinate the implementation with the capital and FFE program.

Marketing

Marketing and Business Plan

Participate in the development of these plans and tailor the Technology plan to suit the needs

Relationship

Develop a relationship with the Sales and Marketing Executives and utilize it to help sell the technology plan.

ROI/Risk

Return on Investment (ROI)

Total Investment/Total Revenue Increase Annually= Number of years to recover the investment.

Risk

Provide a methodology to track the business lost historically and report it. Continue to track business gained from having the technology.

Capital Planning

1. Understand the entire capital and FFE plan for the hotel.

2. Know what is competing for the funds and design the technology plan accordingly.

3. Incorporate infrastructure work with guestroom and meeting room renovations.

4. Get involved early in new construction.

Investing in Infrastructure

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