Downtime

The Most Misunderstood Cost In The Business

Presented By:
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Director of Site Support Services
Hardy Services Division of Hardy Corporation

Getting Your Money's Worth

From Your

Really Expensive IT Stuff

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What You Should Take Away From This Presentation?

What factors make up the cost of downtime?

What causes downtime?

What are some strategies for limiting downtime?

How to calculate your particular cost of downtime?

Why you need to calculate your particular cost of downtime?

How to help your boss understand the cost of downtime?

Down time

Is A Cost!

Just Like

Salaries , Power and Water

It Must Be

Budgeted

Managed

Controlled

The Target Audience For This Presentation

Technology Integrators

Managed Service Providers

Faculty Involved In Teaching IT Related Curriculum

Facilities and Maintenance Management

Executive and Administrative Staff

Purchasing

Staff or Clients Who Use The IT Resources

Anyone Else Who Stumbled In Looking For A Place To Sit Down

HARDY CORPORATION

Founded In 1943 by Frank Hardy 60+ years in business

Nationally - Recognized Design-Build Mechanical Contractor.

All phases of commercial and Industrial mechanical work

From new construction to service and maintenance

Clients


BioLife
PLASMA SERVICES


ALABAMA POWER
A SOUTHERN COMPANY


WELLS FARGO


VH
VESTAVIA HILLS
CITY SCHOOLS


BRASFIELD
&
GORRIE
GENERAL CONTRACTORS


sterne
agee
Investments since 1901


elpaso

Projects


St.Vincent's
HEALTH SYSTEM


ULA
United Launch Alliance


CHILDREN'S
HEALTH SYSTEM®

The Presenter:

Gary E. Dunlap – Director of Site Support Services
Hardy Services Division of Hardy Corporation

25+ Years in IT and Telecom with:
GTE
Sprint
Bellsouth (now AT&T)
Bright House Networks
Advanced TeleData Systems

Maintain
Monitor
Respond

HARDY
Mission-Critical
Infrastructure Management

Mission Critical

Which Processes Are Mission-Critical?

Gartner defines '**mission-critical**' applications as, "Business applications that would bring your organization to a stop if they were not running."

What Is Mission-Critical Infrastructure?

The Hardy Definition:

All the systems that support Information Technology power, cooling, flooring, fire suppression, asset management, physical security, cabling, cable management and many other specialized technologies that support the servers, switches, routers and software that make up the server room landscape.

Why Is The Management of Mission-Critical Infrastructure Important?

Because the **failure** of complex **mission-critical systems** can be **exceptionally costly** to an organization, appropriate management of these systems is **imperative** .

The Uptime Institute

A Real World Story

It was one of those days. Around nine in the morning, I suddenly had to contend with an significant IT disaster: a failed UPS in a medium-size data center. The loss of all three phases kicked in the UPS, **which held the load for all of six seconds** before it quit. Poof! **The whole data center went down.**

Power was restored less than 20 seconds later, but the damage was done. Due to a variety of issues, I was then responsible for getting that data center back on its feet from 250 miles away. Because most of the servers ran Linux, the next hour was full of rapid keystrokes, IM communications, and a gallon of coffee.

When a data center goes down and then back up without physical intervention, it doesn't come up nicely. Storage arrays initialize after servers that try to mount their shares, while some servers boot without access to DNS servers that are also booting and thus have other problems **-- it's a mess**.

Luckily, there were no data corruption issues, and eventually all servers and services were returned to normal operating state. The next day consisted of trying to figure out **why a massive UPS handling a 44 percent load decided to quit after just a few seconds**, but that's what postmortems are for.

This excerpt was originally published at InfoWorld.com. Read more of Paul Venezia's The Deep End blog at InfoWorld.com.

In Business

The Importance Of Mission- Critical Infrastructure

Is Measured In

$ Dollars

Industry	IT Service	CoD per Min and per Hr
Financial	Brokerage Operations	$107,500/$6,450,000
Financial	Credit card/Sales authorization	$43,333/$2,600,000
Financial	ATM fees	$241/$14,500
Media	pay-per-view	$2,500/$150,000
Media	teleticket sales	$1,150/$69,000
Retail	Home shopping	$1,883/$113,000
Retail	Catalog sales	$1,500/$90,000
Transportation	Airline reservations	$1,483/$89,000
Transportation	Package shipping	$466/$28,000
	Mean CoD/min	$17,784

Table 1. Downtime Cost per Hour for Various Industries (source Dataquest)

The Cost Of Failure

How Do I Calculate The Cost ?

Daily Revenue $s divided by Business Hours Per Day

$5,000 / 8 = $625 per Hour
($1,140,00000 annual)

How Is Revenue Is Brought In :

Walk In - %?
Telephone - %?
Fax - %?
Email - %?
Website - %?

The Cost Of Failure

How Do I Calculate The Cost ?

Daily Revenue $s divided by Business Hours Per Day

$5,000 / 8 = $625 per Hour
($1,140,00000 annual)

How Revenue Is Brought In :

Walk In – 5% = $31.25
Telephone – 70% = $437.50
Fax – 10% = $62.50
Email – 10% = $62.50
Website – 5% = $31.25

The Cost Of Failure

How Do I Calculate The Cost ?

Daily Revenue $s divided by Business Hours Per Day

$5,000 / 8 = $625 per Hour
($1,140,00000 annual)

A Four Hour Internet Outage
Could Cost Your Company
$375.00 In Lost Revenue.

The Cost Of Failure

How Do I Calculate The Cost ?

Daily Revenue $s divided by Business Hours Per Day

$5,000 / 8 = $625 per Hour
($1,140,00000 annual)

A Four Hour Server Outage
Could Cost Your Company
$1750.00 In Lost Revenue.

The Cost Of Failure

How Do I Calculate The Cost ?

Cost Of Associated IT Hours To Recover From A Data Loss

Average IT Support Time To Recover
Six (6) Hours
ONTRACK Data International , 2003

Average IT Support Person Compensation
$28.10 per hour
Bureau of Labor Statistics

Average IT Cost To Recover
Six (6) Hours X $28.10 = $168.60

The Cost Of Failure

How Do I Calculate The Cost ?

Average Alabama Wage
$13.33 per hour
Bureau of Labor Statistics

Average Productivity Loss
Six (6) Hours X $13.33 = $79.98 per employee

$79.98 X *15 employees = $1199.70

*Average number of employees for companies with *$1,140,00000 annual revenue according to the U.S. Census Bureau*

The Cost Of Failure

How Do I Calculate The Cost ?

Lost Revenue = $1750.00

IT Cost = $169.00

Productivity Loss= $1200.00

Four Hour Server Outage
Total
$3119.00

In The REAL World

The Value Of Mission-Critical Applications

Often Transcends
The Issue Of Money

Reputation

Questioning The Companies Competence

Damaged Customer Stock Holder Confidence

Why People Need Technology …….

Technology Lets You Spend More Time ……..

Collaboration – Team Efforts

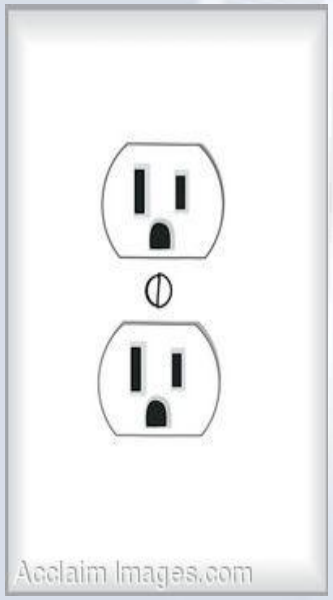
The ability to access technology tools
<u>outside of normal hours</u>


E
MAIL


http://www

In Order For Companies To Reap The Full Benefits Of Their Technology Investment……

The Technology **HAS TO BE AVAILABLE!**


Acclaim Images.com

What Is Mission-Critical Infrastructure? The Parts and Pieces

Uninterruptible Power Supply - UPS

Cooling - CRAC or CRAH

Cabinets and Racks

Cabling – Copper and Fiber

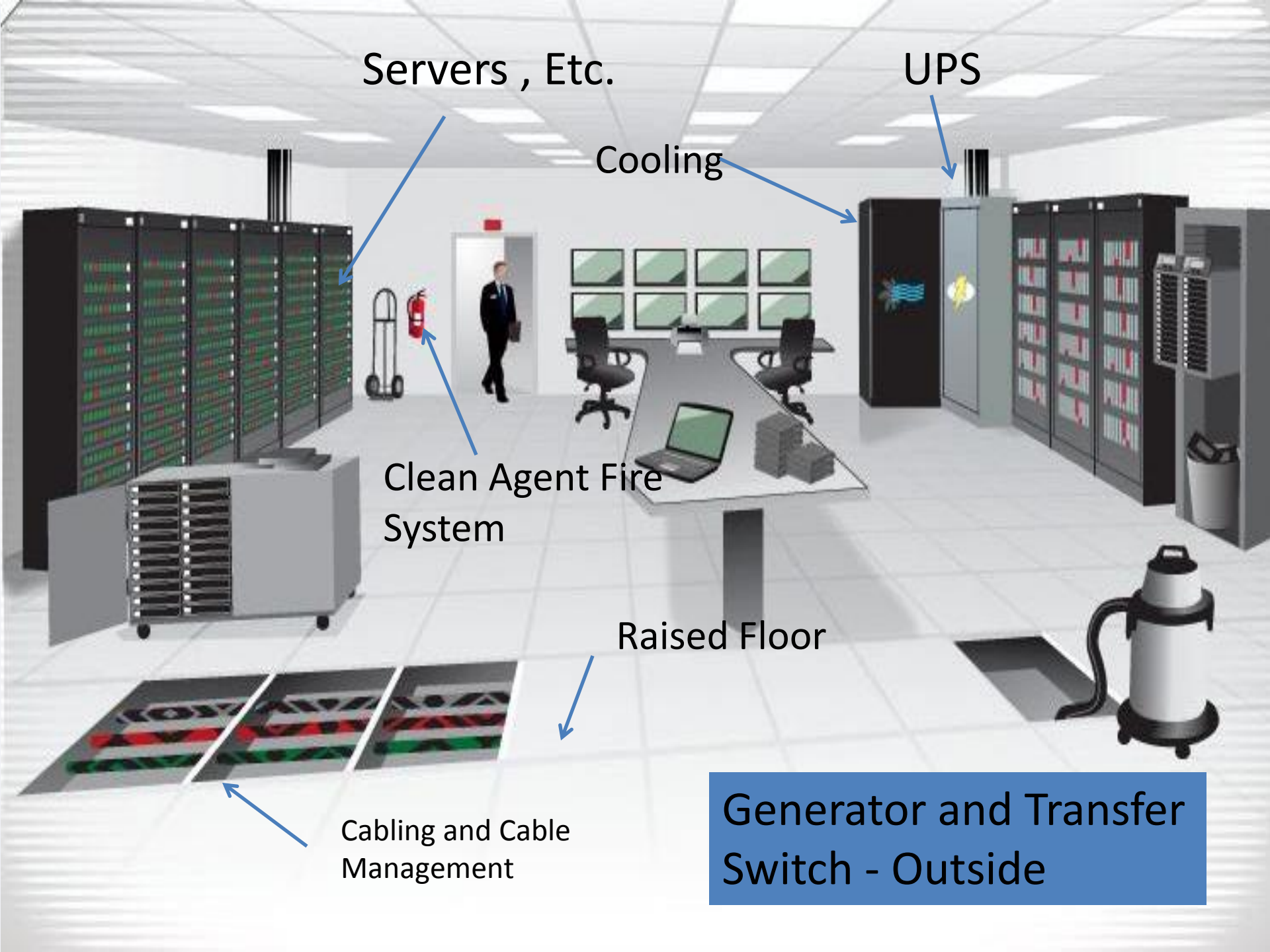
Flooring

Emergency Power - Generator

Fire Detection and Suppression

Physical Security – Access Control, Cameras

Asset Management


Servers , Etc.
UPS
Cooling
Clean Agent Fire System
Raised Floor
Cabling and Cable Management
Generator and Transfer Switch - Outside

VESTAVIA HILLS CITY SCHOOLS

Kohler 150 KW Natural Gas Generator
2 - Liebert 5Ton CRV In Row Cooling
Liebert NX 30 KVA UPS

VESTAVIA HILLS CITY SCHOOLS

Kohler 150 KW Natural Gas Generator Semi-Annual Maintenance Monitor

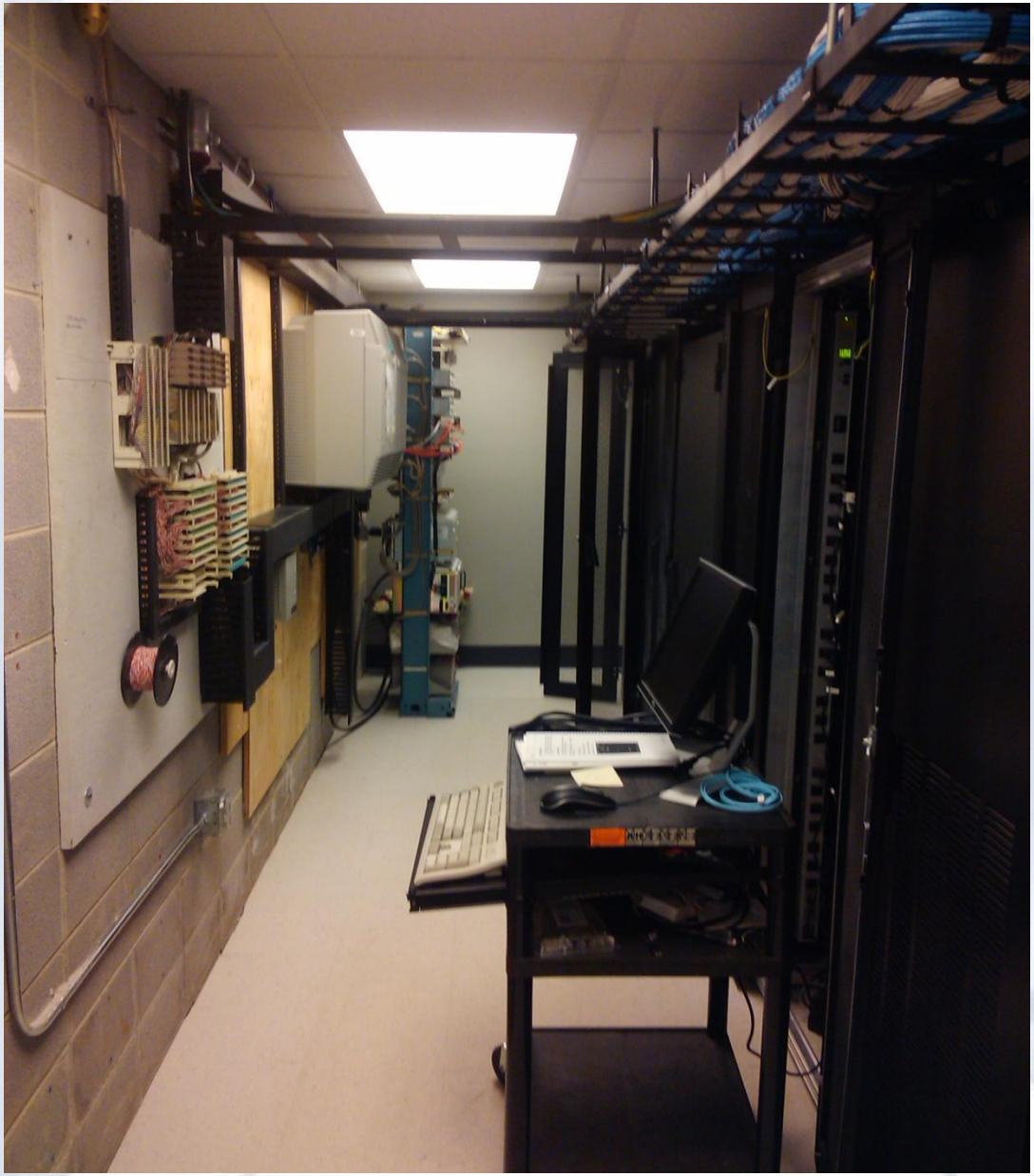
2 - Liebert 5Ton CRV In Row Cooling
Service Six Times Per Year
Monitor

Liebert NX 30 KVA UPS
Four Inspections per year
Factory PM Annually
Monitor


Knürr


EMERSON
Network Power
66.4°F 57%RH
COOLING
DEHUMIDIFYING
NO ALARMS PRESENT
ON
OFF
1
Liebert


EMERSON
Liebert
30kVA



Computer Room Air Conditioning (CRAC)

Computer Room Air Conditioning (CRAC)

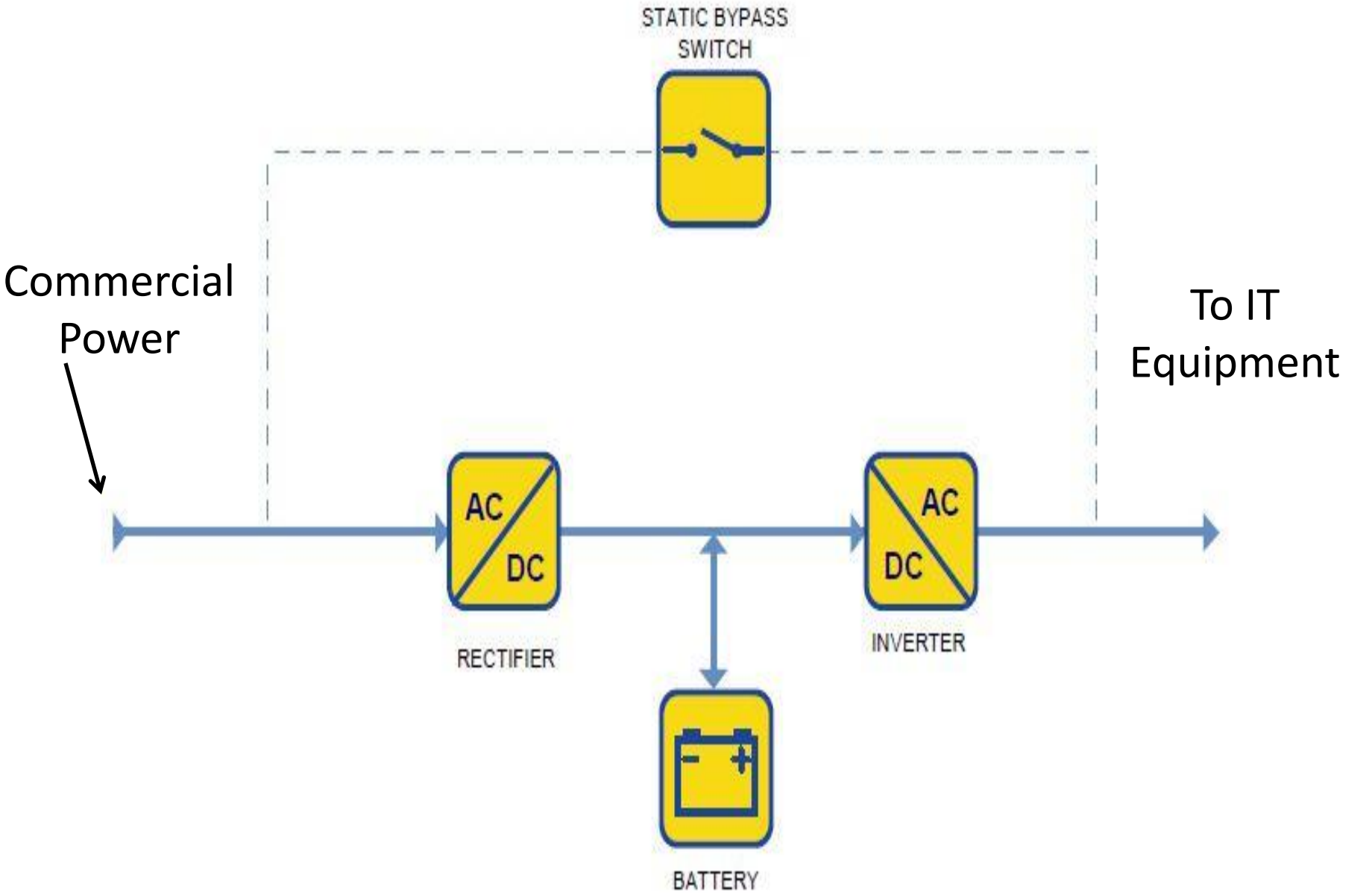
Continuous Operation

Humidity

Complex Control Systems

Uninterruptible Power Systems
UPS

Figure 4 – Double Conversion On-Line UPS



Uninterruptible Power Systems

UPS

What Kills UPS?

Heat

Uninterruptible Power Systems

UPS

What Kills UPS?

Heat

USE

Loose Connections

Emergency Backup Power

Generators

Expensive To Acquire

High Cost Of Maintenance and Repair

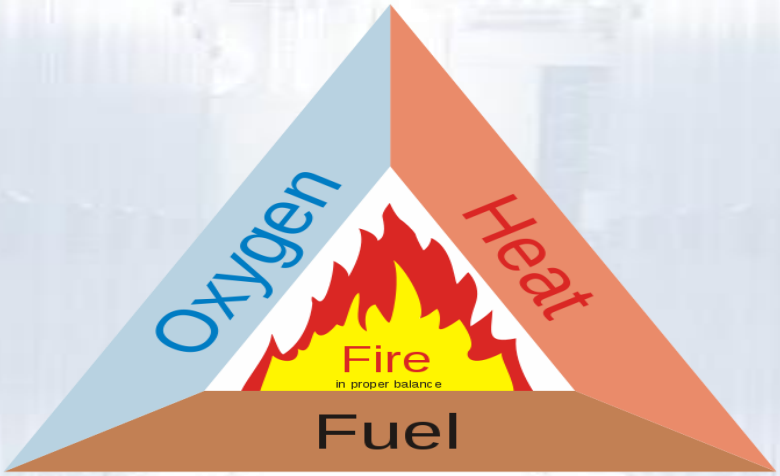
Sit Idle Most Of The Time

Sometimes They Don’t Work – When You Need Them The Most


GUYS!
A/C Guy

System Integration Issues

Fire System



Four Guys

System Integration Issues

Commercial Power Goes Down

Generator Kicks In

Electrical Load Is Transferred To Emergency Power

The UPS fails to recognize the generator as a legitimate power source

Latching

Three Guy Issue


Maintain
Monitor
Respond

$185,000.00 Nicely Equipped

Would You Change The Oil Regularly ?

Would You Take It To The Ferrari Dealer For Service ?

Proper Scheduled Maintenance
Increases The Life Of Equipment

3 to 5 X s

Maintain

1. Lower The Instance Of Maintenance Related Failures

2. Increase The Working Life Of Equipment

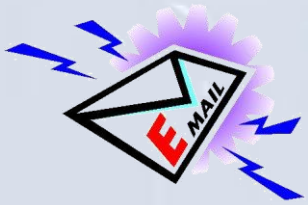
$185,000.00 Nicely Equipped

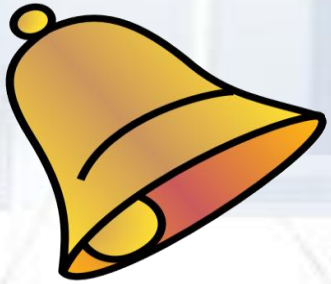
Good Stewards Of The Budget Dollars

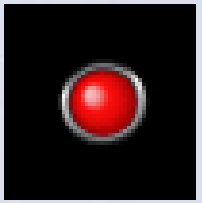
Monitor

The Difference Between
Monitoring and Notification

Notification







If a tree falls in the forest and nobody is around to see it or hear it. Will it make any sound?

Monitor

1. Pro-Active Diagnostic Information

2. Faster Response To Problems

3. BETTER Response To Problems

BETTER Response To Problems

Technician Is Better Prepared When He Arrives On Site

Gives The Ability To Triage Service Calls

Monitoring Reduces The Severity and Length Of Outages

Technicians = Time
Time = $$$$$s

Monitoring Saves You Money On Service

Respond

SPEED IS VERY IMPORTANT

PREPAREDNESS

DIAGNOSTIC SKILL

ARE JUST AS IMPORTANT

Respond

Response Is Not Just About

Fixing The Problem

It Also Means Understanding

WHY

So That It Doesn't Happen AGAIN!

Getting Your Money's Worth From Your Really Expensive IT Stuff

Maximize Volume Availability From Your Mission-Critical Infrastructure


Maintain
Monitor
Respond