Stress Testing of Research Systems

Ron Hood, Manager Voice/Data Operations
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FRED HUTCHINSON CANCER RESEARCH CENTER
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Recent Painful Experiences
&
How I Hope to Avoid Repeating Them in the Future

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Hutch Background

- Seattle, Washington
- ~2,500 Faculty & Staff
- 12 buildings on a 13 acre campus
- Stand-alone institution (not part of a university or hospital)
- Research only – no clinical care

Hutch IT Background

- Decentralized – 30 different IT groups.
- “Center IT” is the largest @ ~60 FTE.
- Housed in Administration division.
- Desktop, File/Print, and Application support for Admin & Clinical Research divisions.
- Project Management support for Center IT.
- Network, Information Security, and email for entire center.

Ron's Background

- Has-been network geek.
- Newbie @ information security.
- Minimal knowledge of servers, desktops, software development, project management, and scientific applications.
- Responsible for voice, network, information security, and physical infrastructure.

Server Rooms: HVAC

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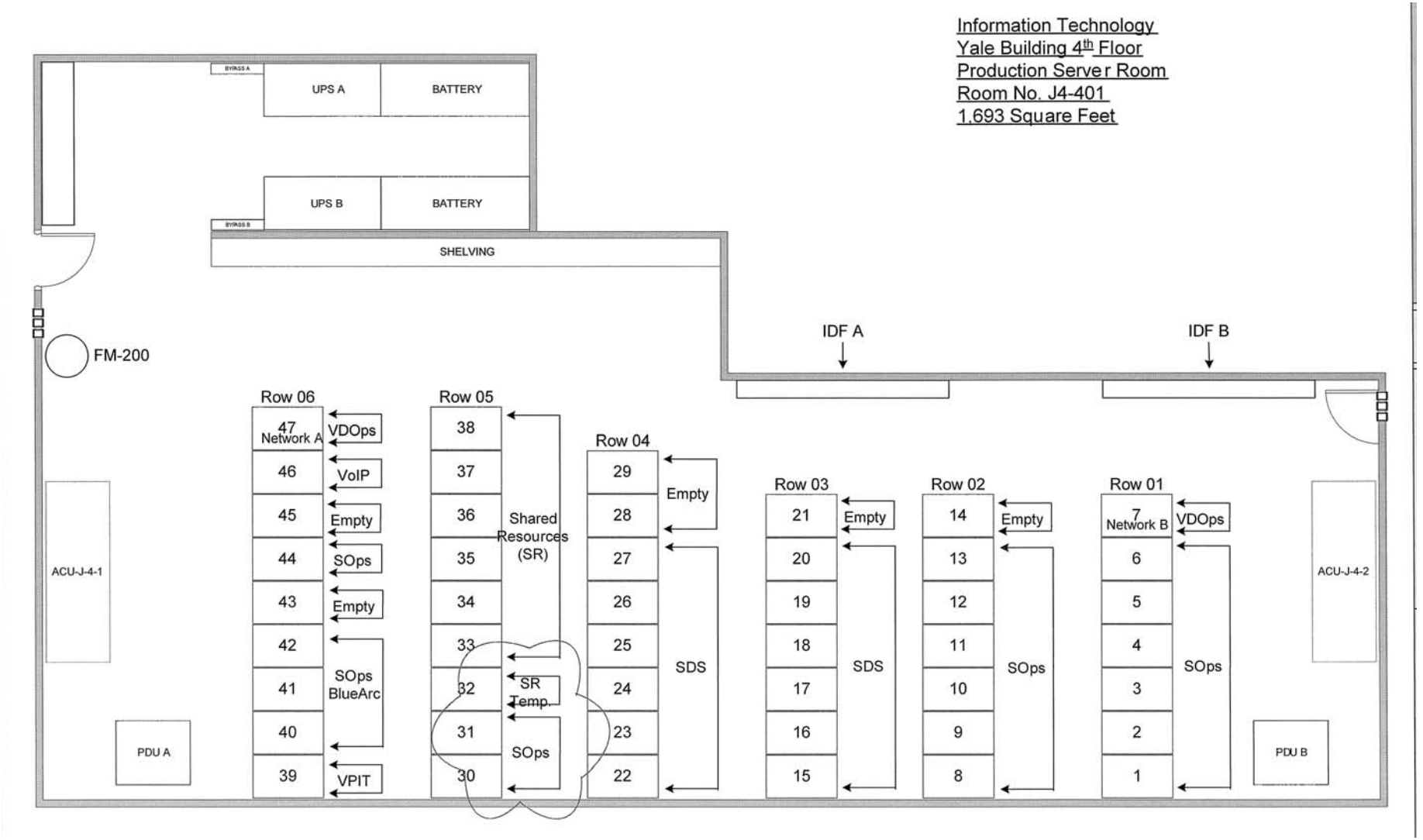

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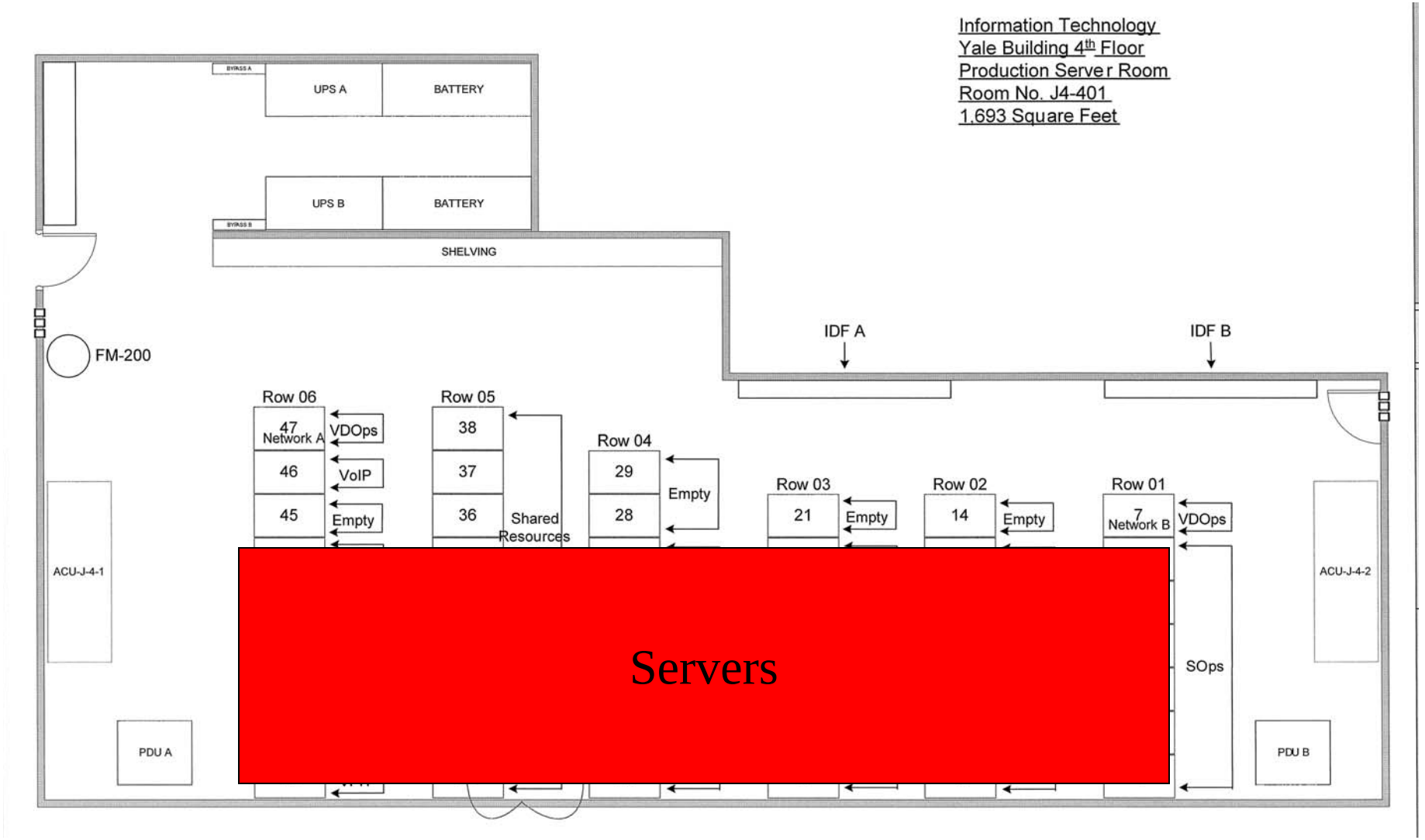

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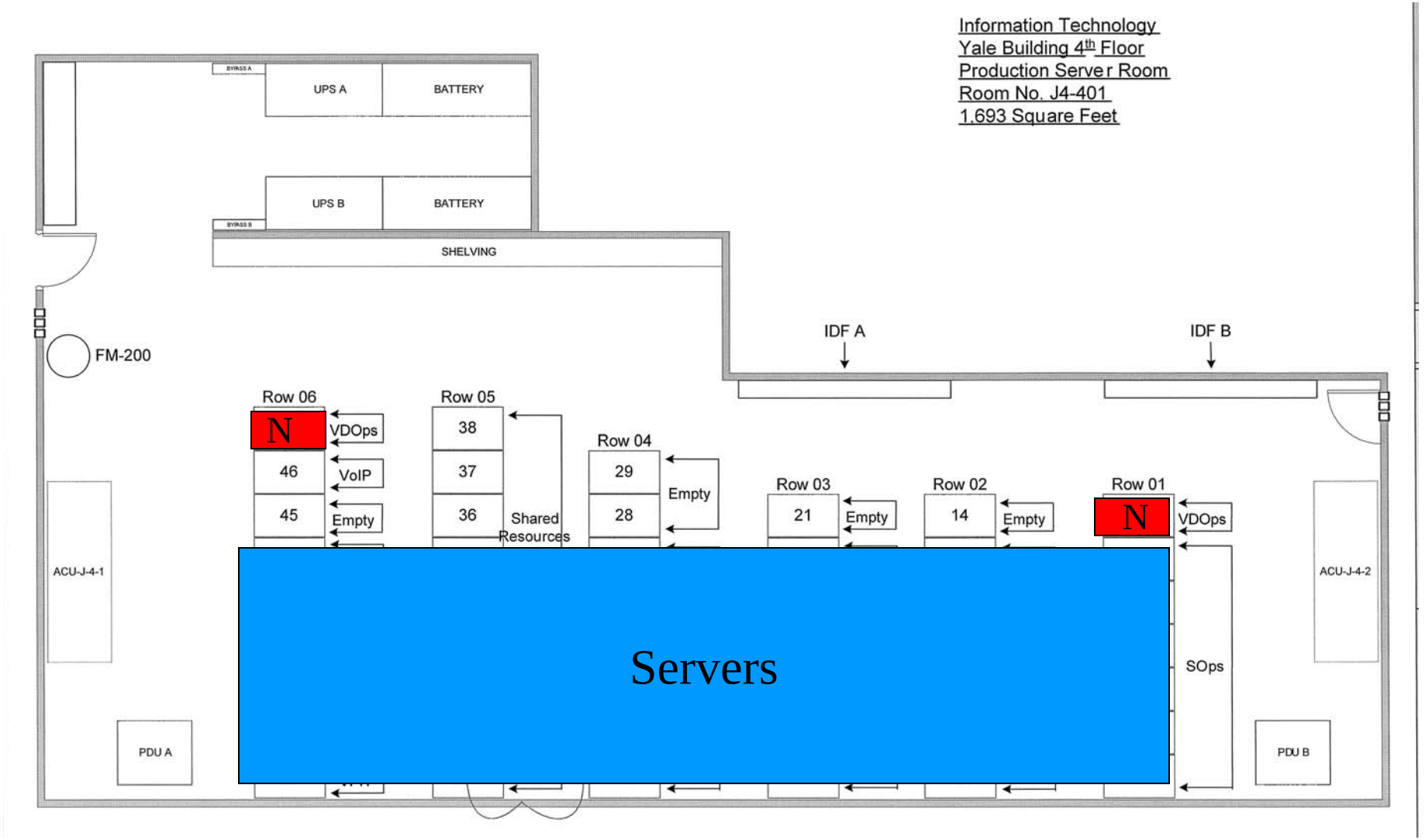

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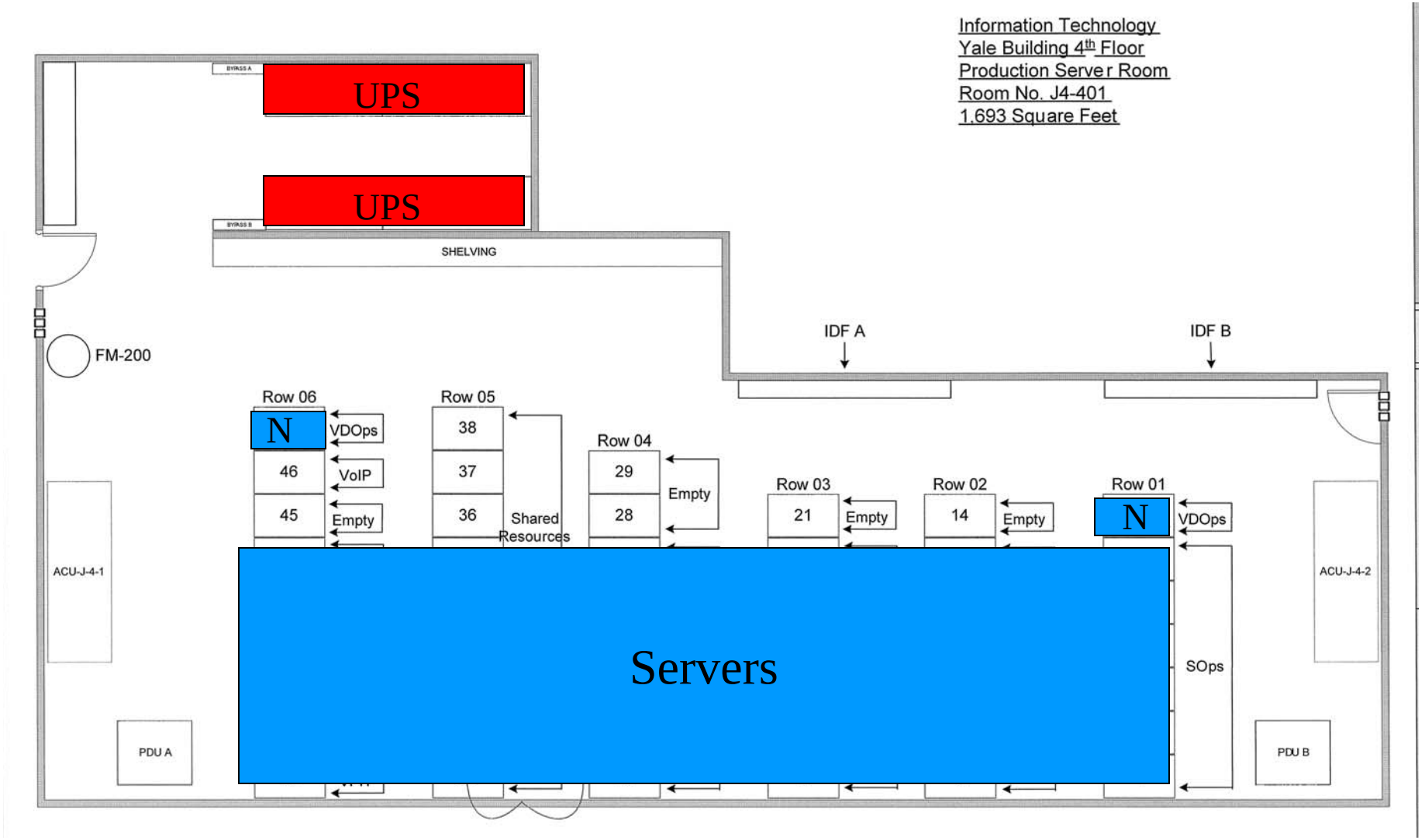

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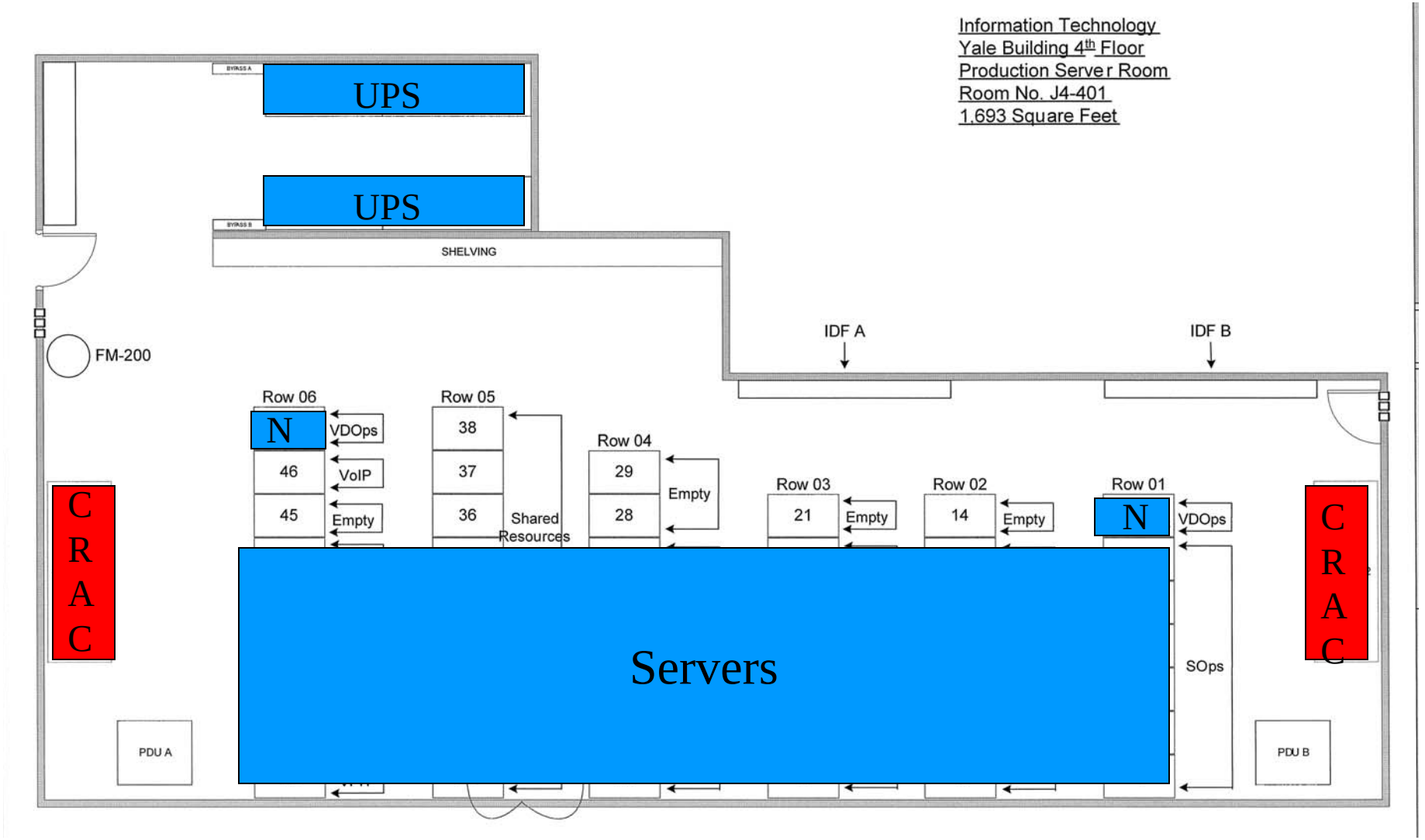
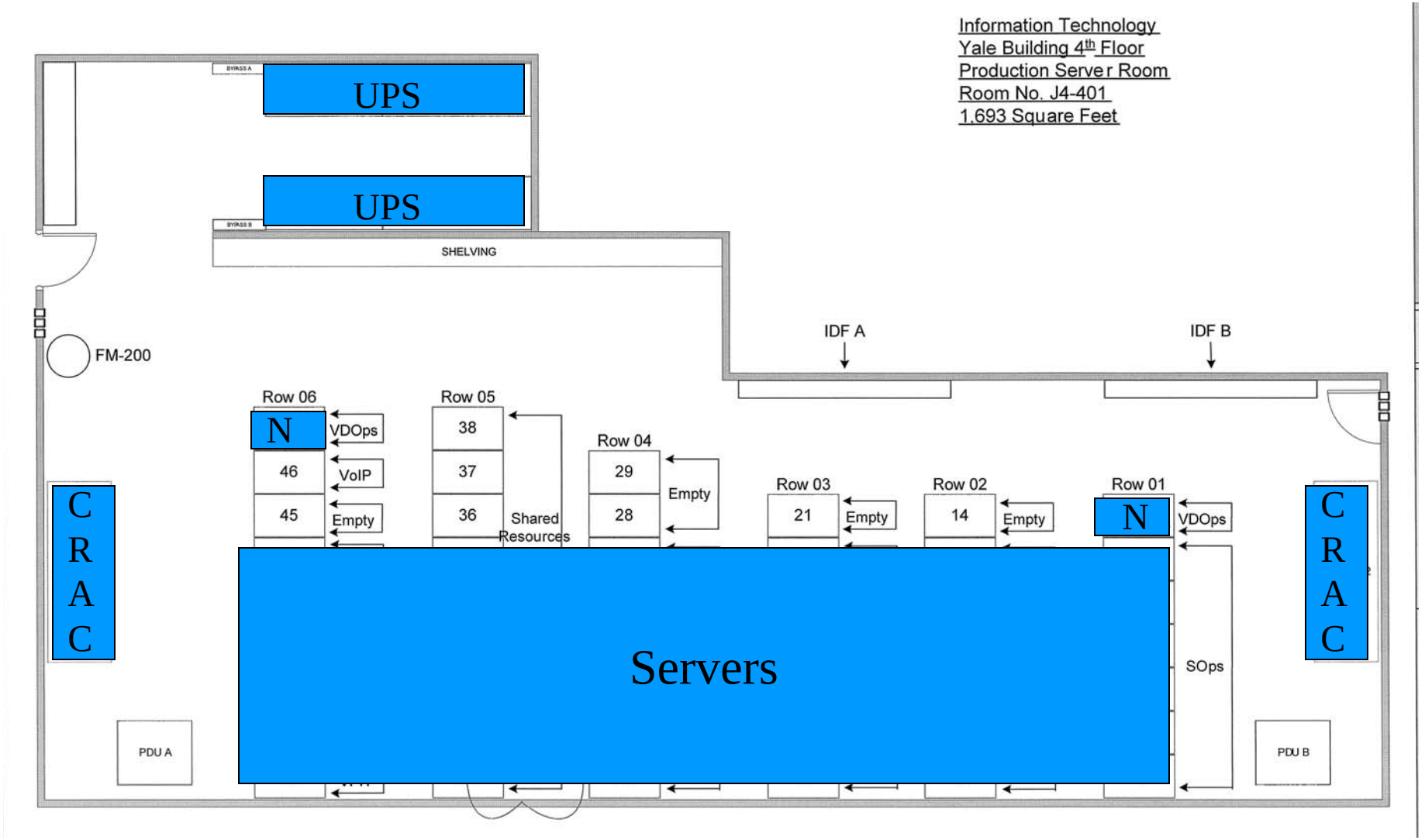

Information Technology
Yale Building 4th Floor
Production Server Room
Room No. J4-401
1,693 Square Feet
UPS
UPS
SHELVING
FM-200
IDF A
IDF B
Row 06
N
VDOps
46
VoIP
45
Empty
Row 05
38
37
36
Shared Resources
Row 04
29
28
Empty
Row 03
21
Empty
Row 02
14
Empty
Row 01
N
VDOps
SOps
CRAC
CRAC
Servers
PDU A
PDU B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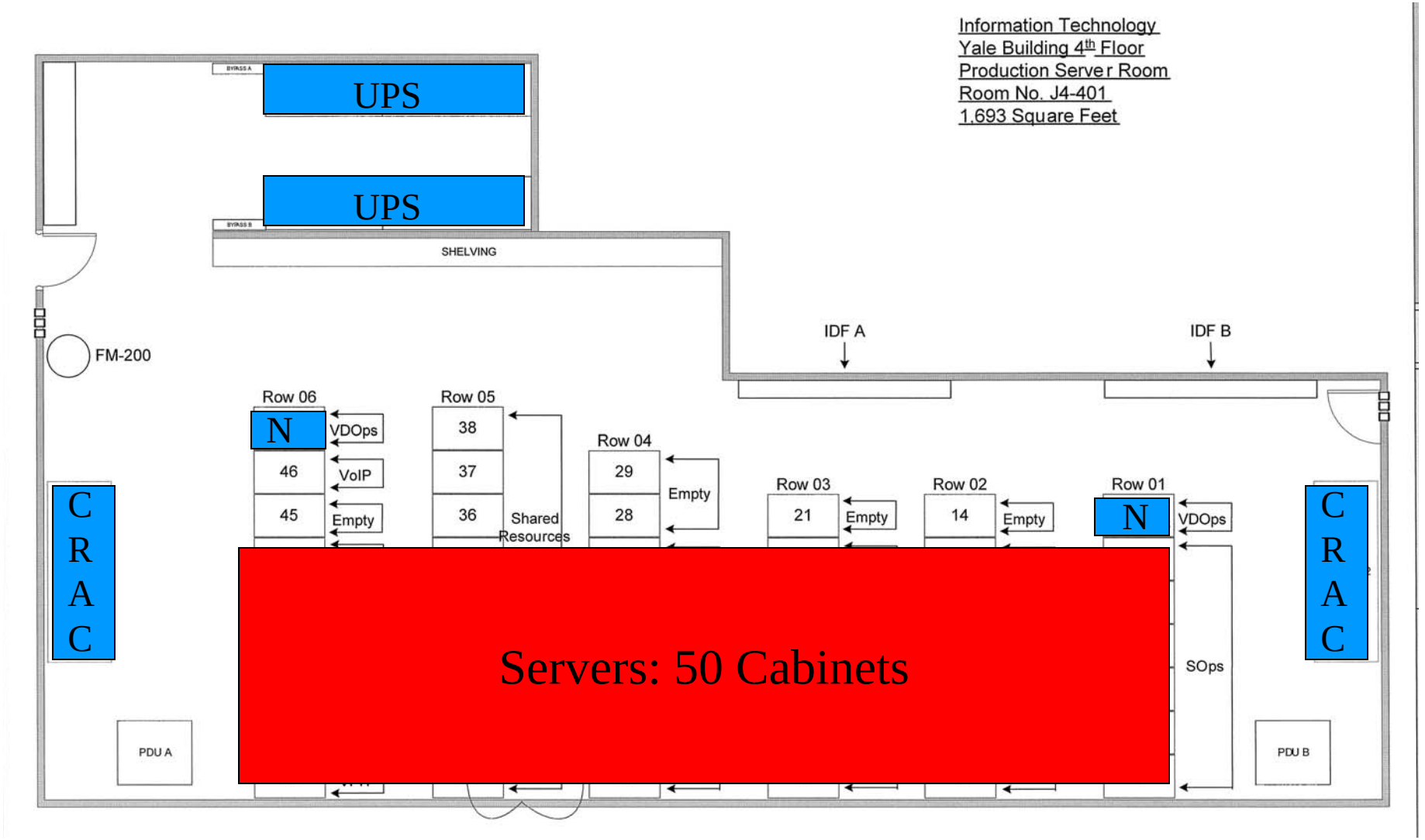
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28
Empty
Row 03
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Empty
Row 02
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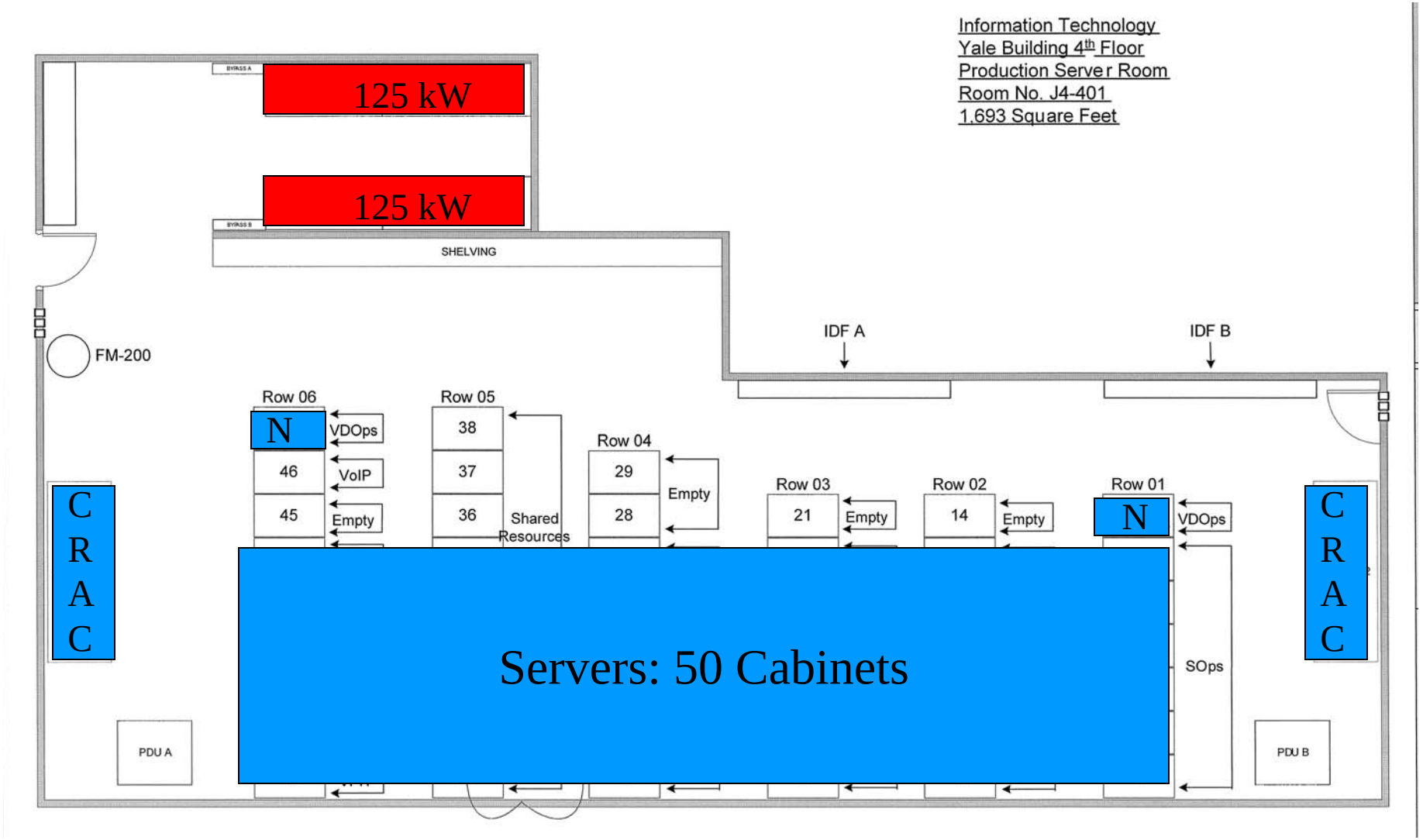
Empty
Row 01
N
VDOps
SOps
CRAC
CRAC
Servers: 50 Cabinets
PDU A
PDU B


Information Technology
Yale Building 4th Floor
Production Server Room
Room No. J4-401
1,693 Square Feet
125 kW
125 kW
SHELVING
FM-200
IDF A
IDF B
Row 06
N
VDOps
46
VoIP
45
Empty
Row 05
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Servers: 50 Cabinets
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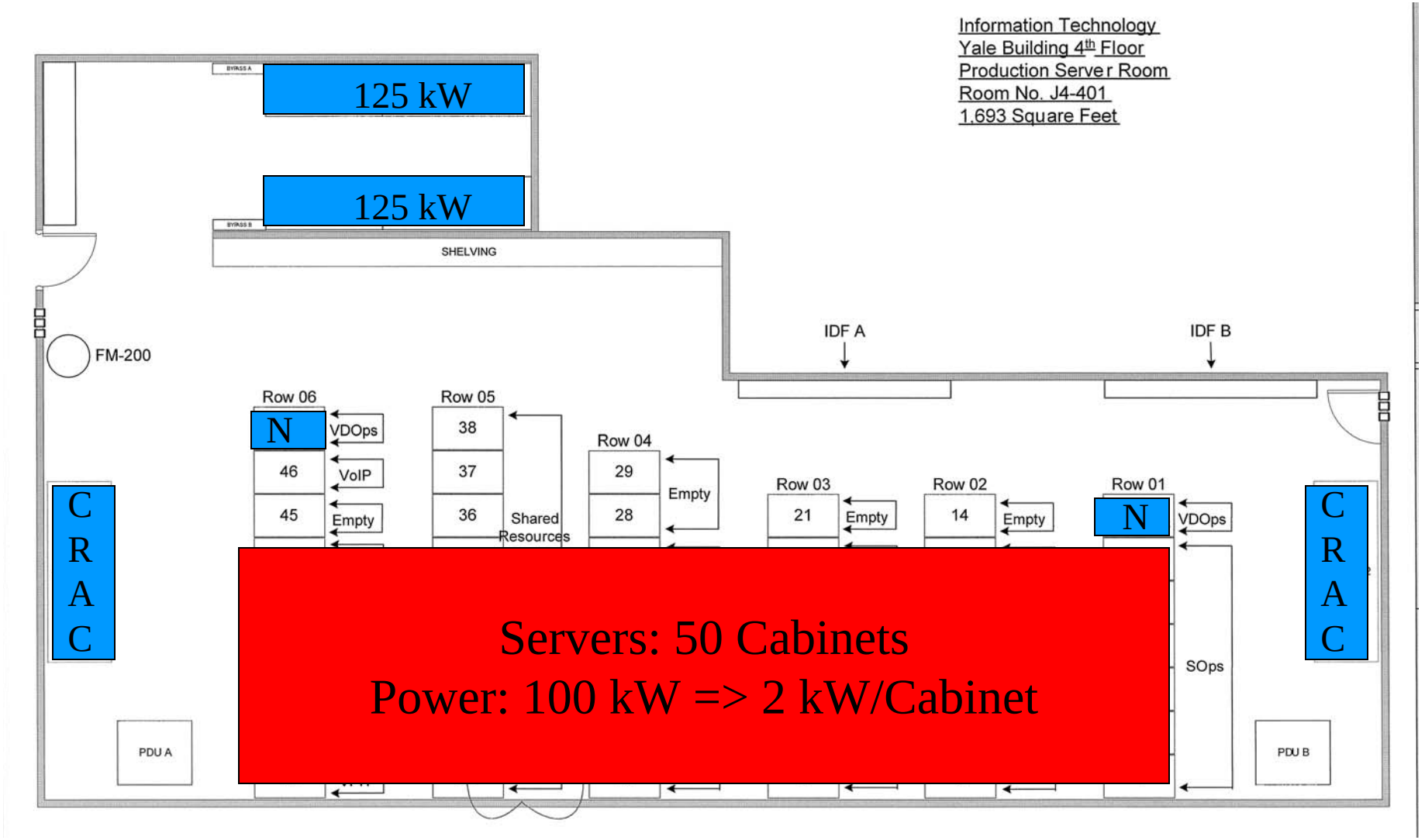
PDU B


Information Technology
Yale Building 4th Floor
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Room No. J4-401
1,693 Square Feet
125 kW
125 kW
SHELVING
FM-200
IDF A
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Row 06
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Row 03
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Empty
Row 02
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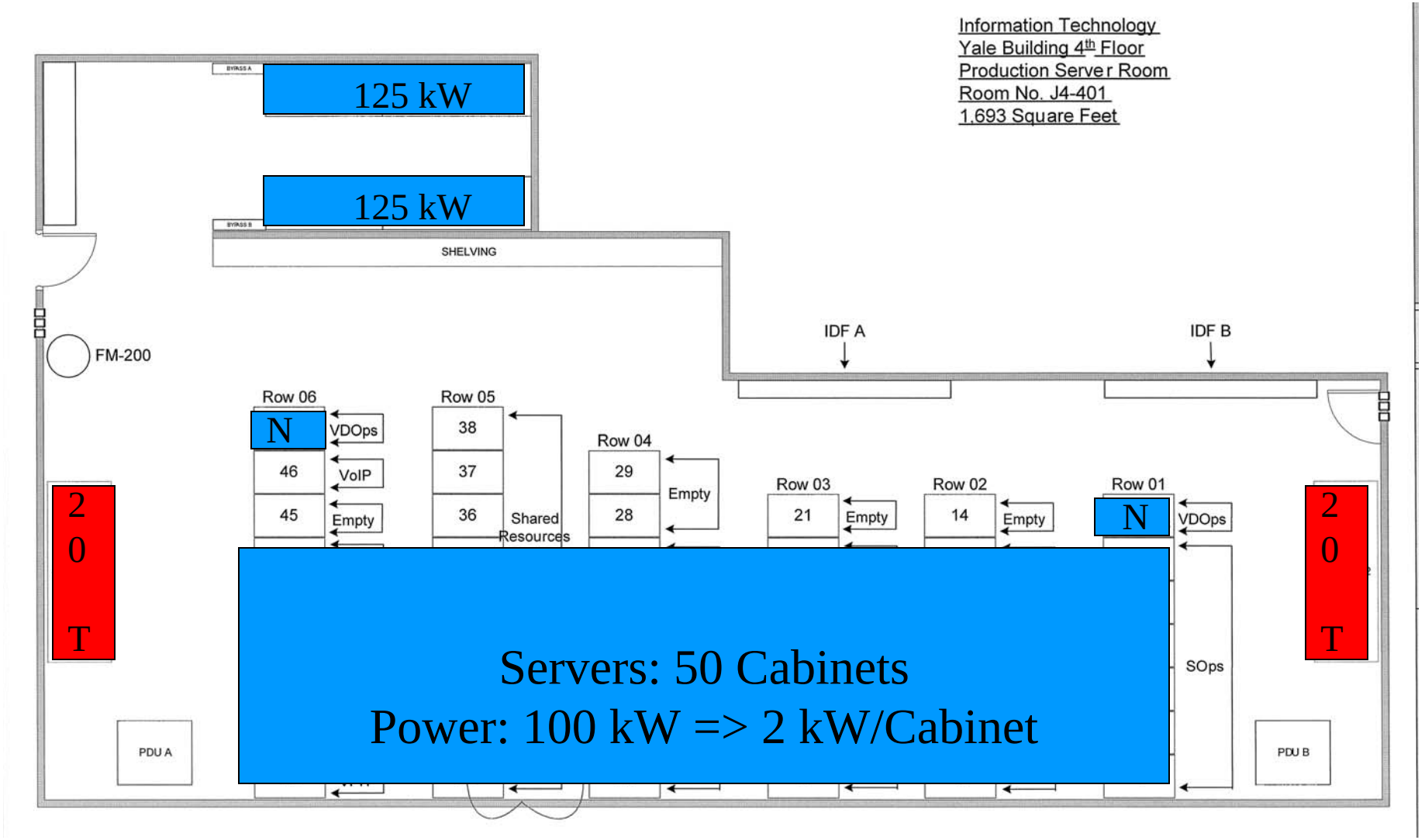
Empty
Row 01
N
VDOps
SOps
CRAC
CRAC
PDU A
PDU B
Servers: 50 Cabinets
Power: 100 kW => 2 kW/Cabinet


Information Technology
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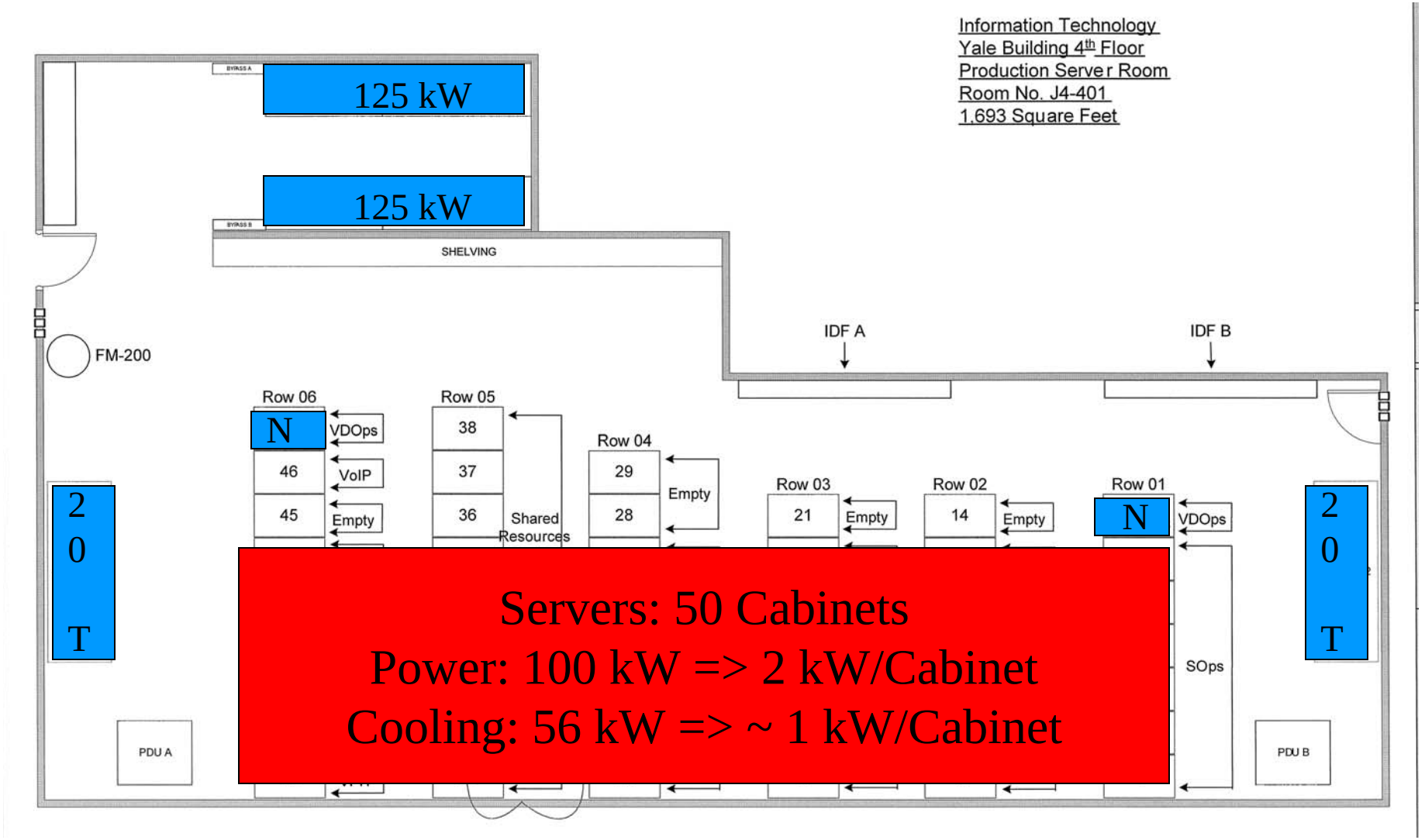
Shared Resources
Row 04
29
28
Empty
Row 03
21
Empty
Row 02
14
Empty
Row 01
N
VDOps
SOps
20T
20T
Servers: 50 Cabinets
Power: 100 kW => 2 kW/Cabinet
PDU A
PDU B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Row 02
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Row 01
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2 0 T
2 0 T
PDU A
PDU B
Servers: 50 Cabinets
Power: 100 kW => 2 kW/Cabinet
Cooling: 56 kW => ~ 1 kW/Cabinet

Take-Away Lessons:

- **Do the math.**

Server Rooms: Power

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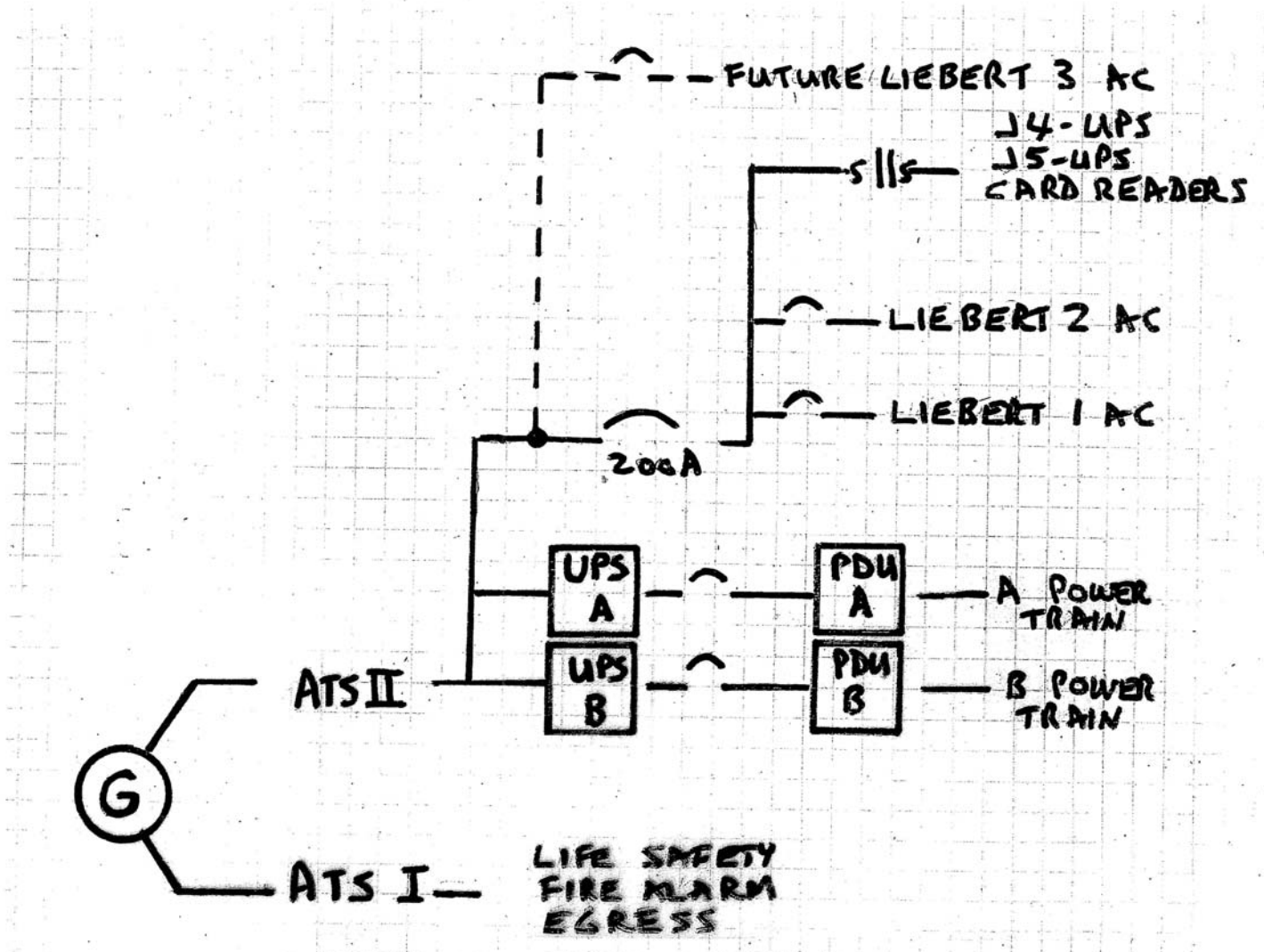
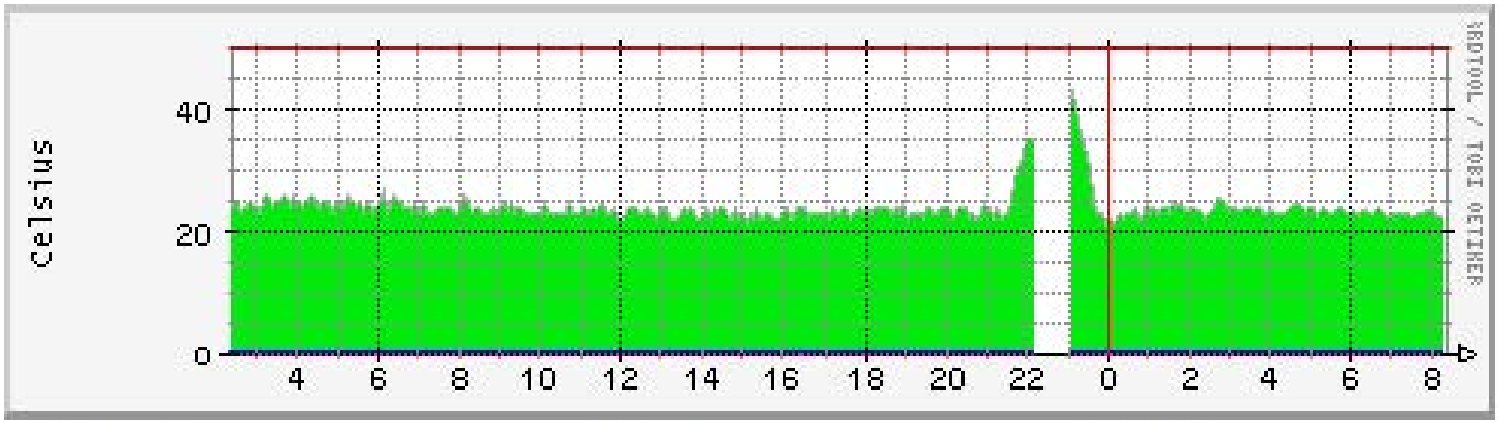

FUTURE LIEBERT 3 AC
J4-UPS
J5-UPS
CARD READERS
LIEBERT 2 AC
LIEBERT 1 AC
200A
UPS A
UPS B
PDU A
PDU B
A POWER TRAIN
B POWER TRAIN
ATS II
G
ATS I
LIFE SAFETY
FIRE ALARM
EGRESS

j4sr-a-ups Temperature

The statistics were last updated **Thursday, 02 February, 08:18:01 PST**

`Daily' Graph (5 Minute Average)



Max Temp 43.0 (86.0%) Average Temp 23.9 (47.8%) Current Temp 22.6 (45.2%)

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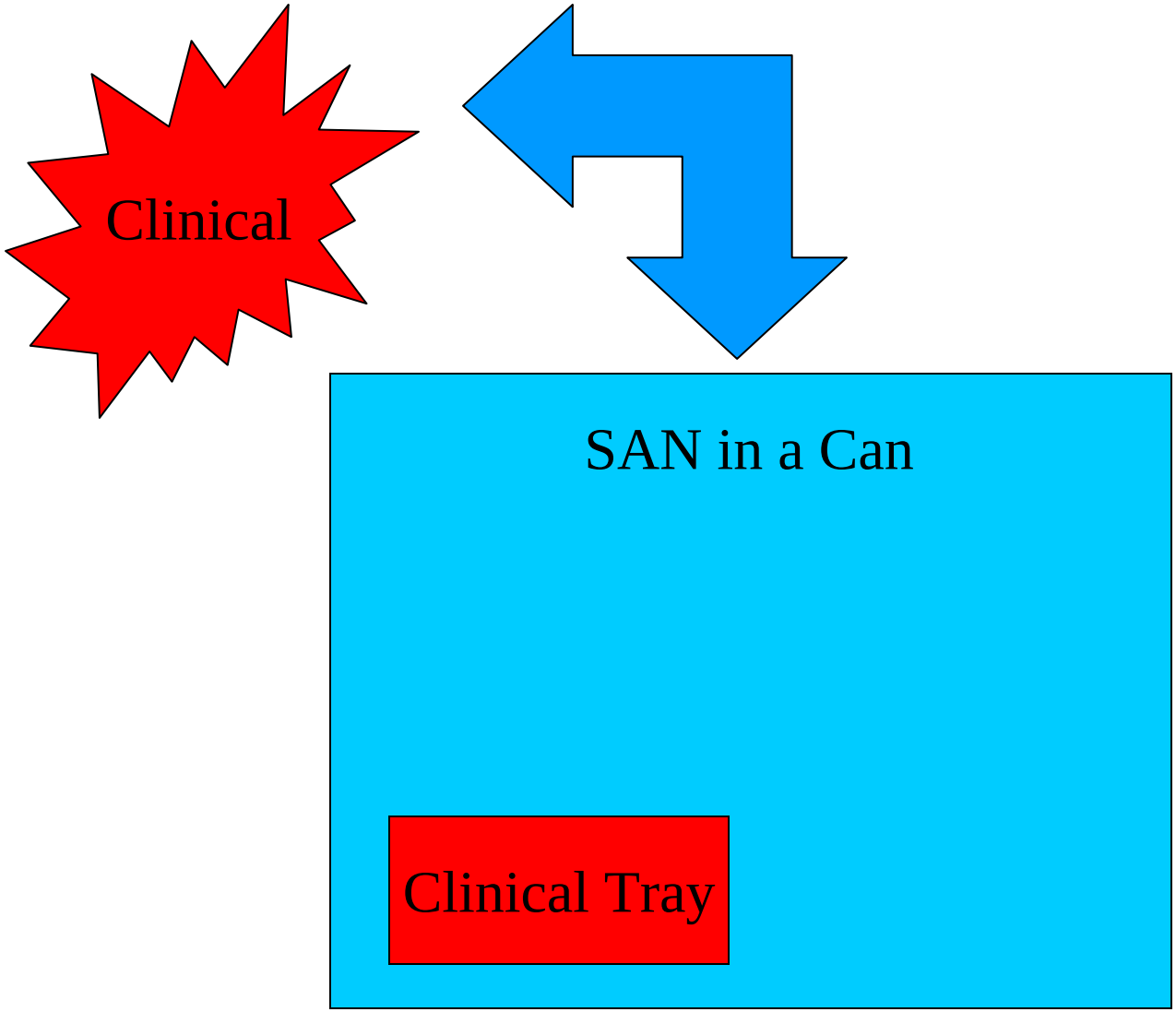
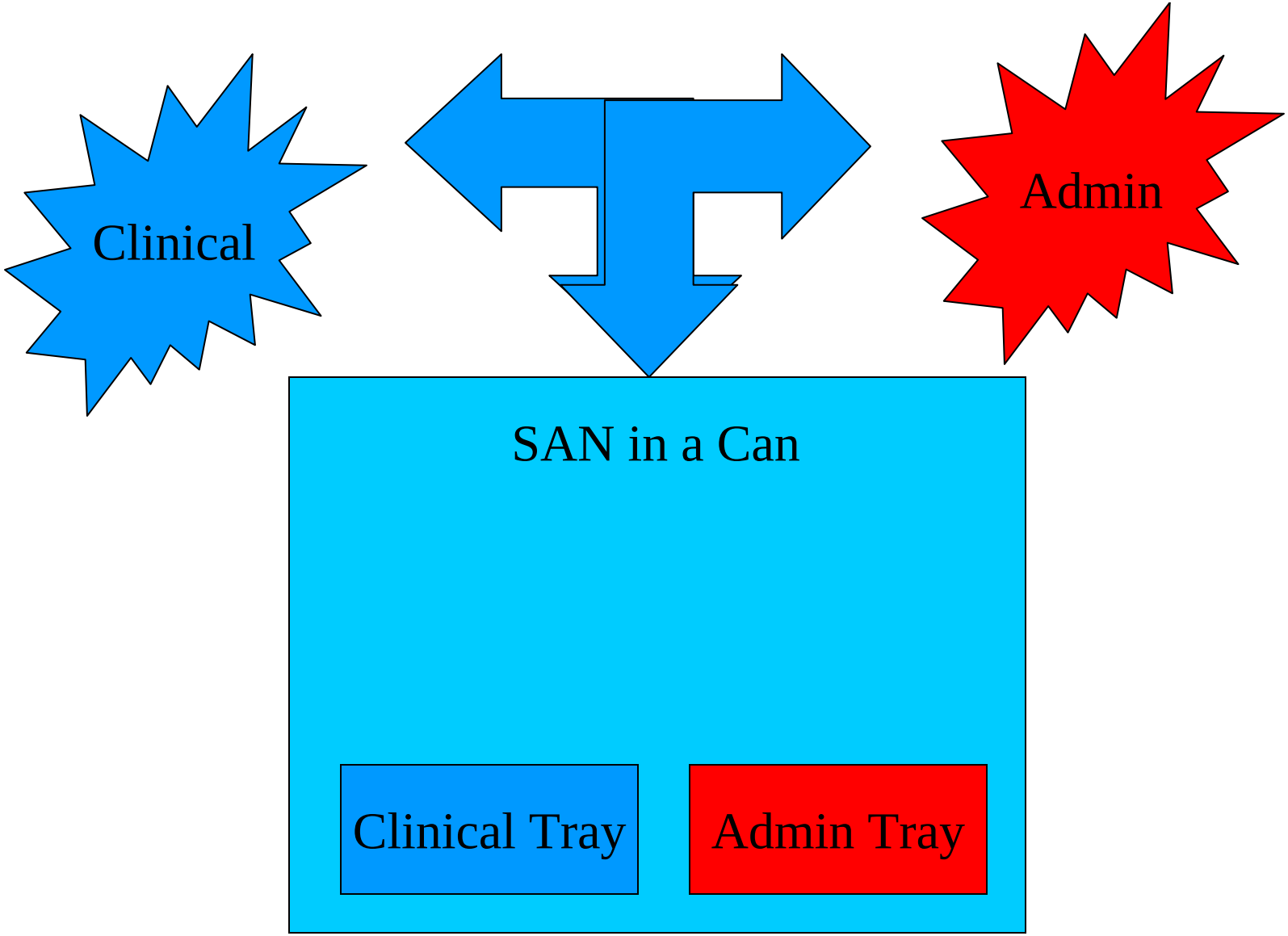
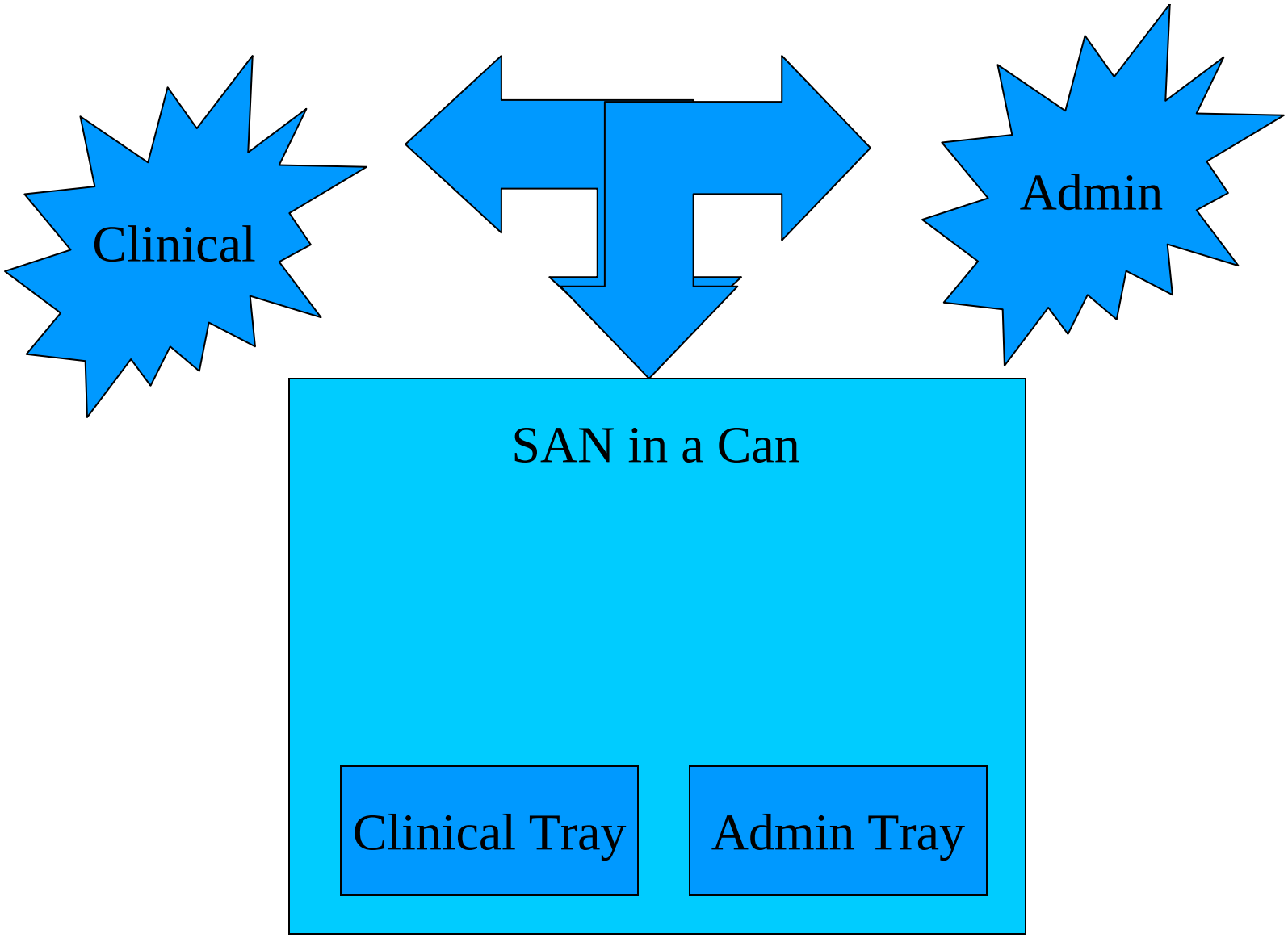
Take-Away Lessons:

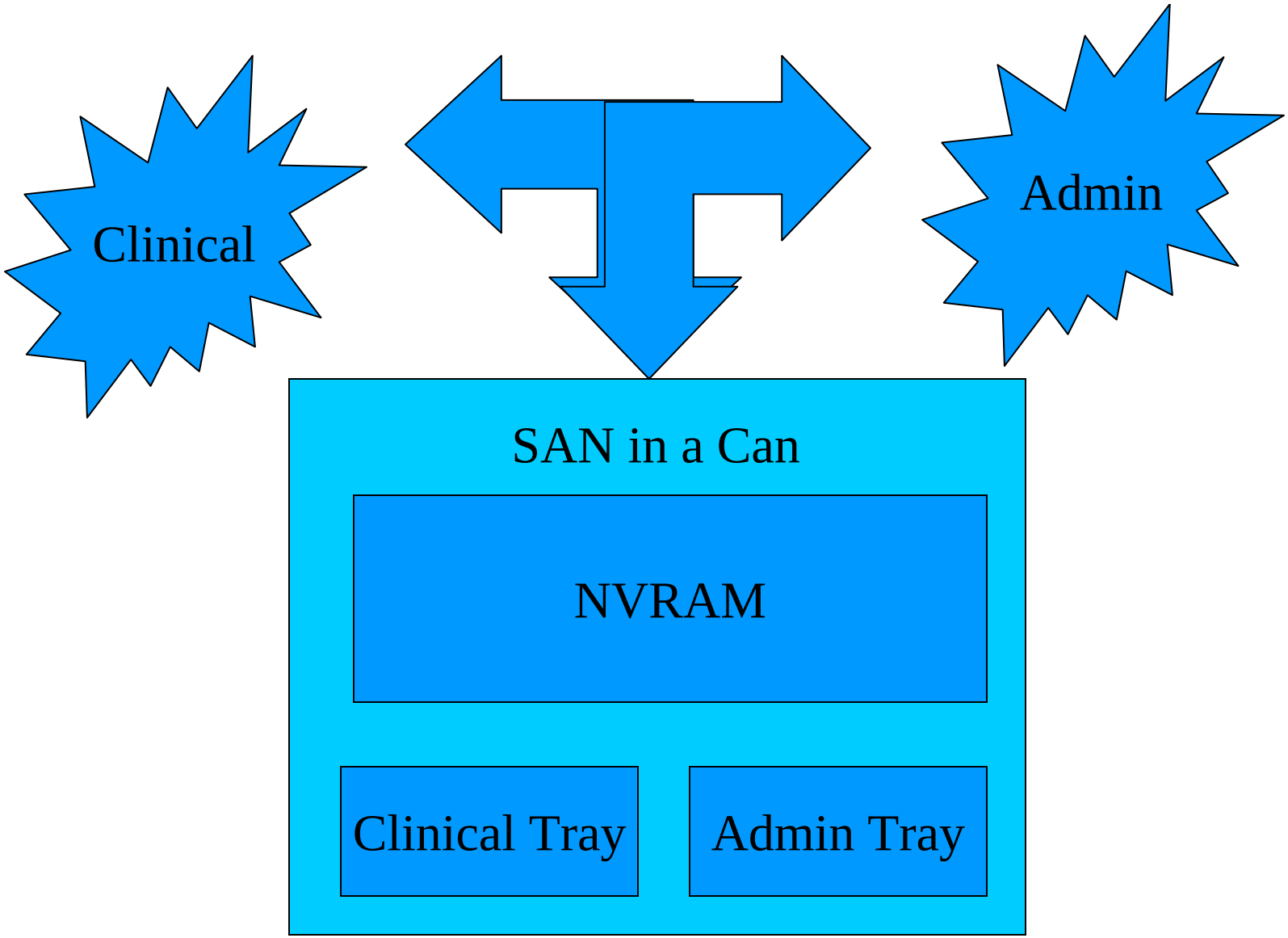
- Do the math.
- **Understand the architecture.**

Storage


Clinical
SAN in a Can
Clinical Tray


Clinical
Admin
SAN in a Can
Clinical Tray
Admin Tray


Clinical
Admin
SAN in a Can
Clinical Tray
Admin Tray


Clinical
Admin
SAN in a Can
NVRAM
Clinical Tray
Admin Tray

Take-Away Lessons:

- Do the math.
- **Understand the architecture.**

Take-Away Lessons:

- **Do the math.**
- Understand the architecture.

Networks

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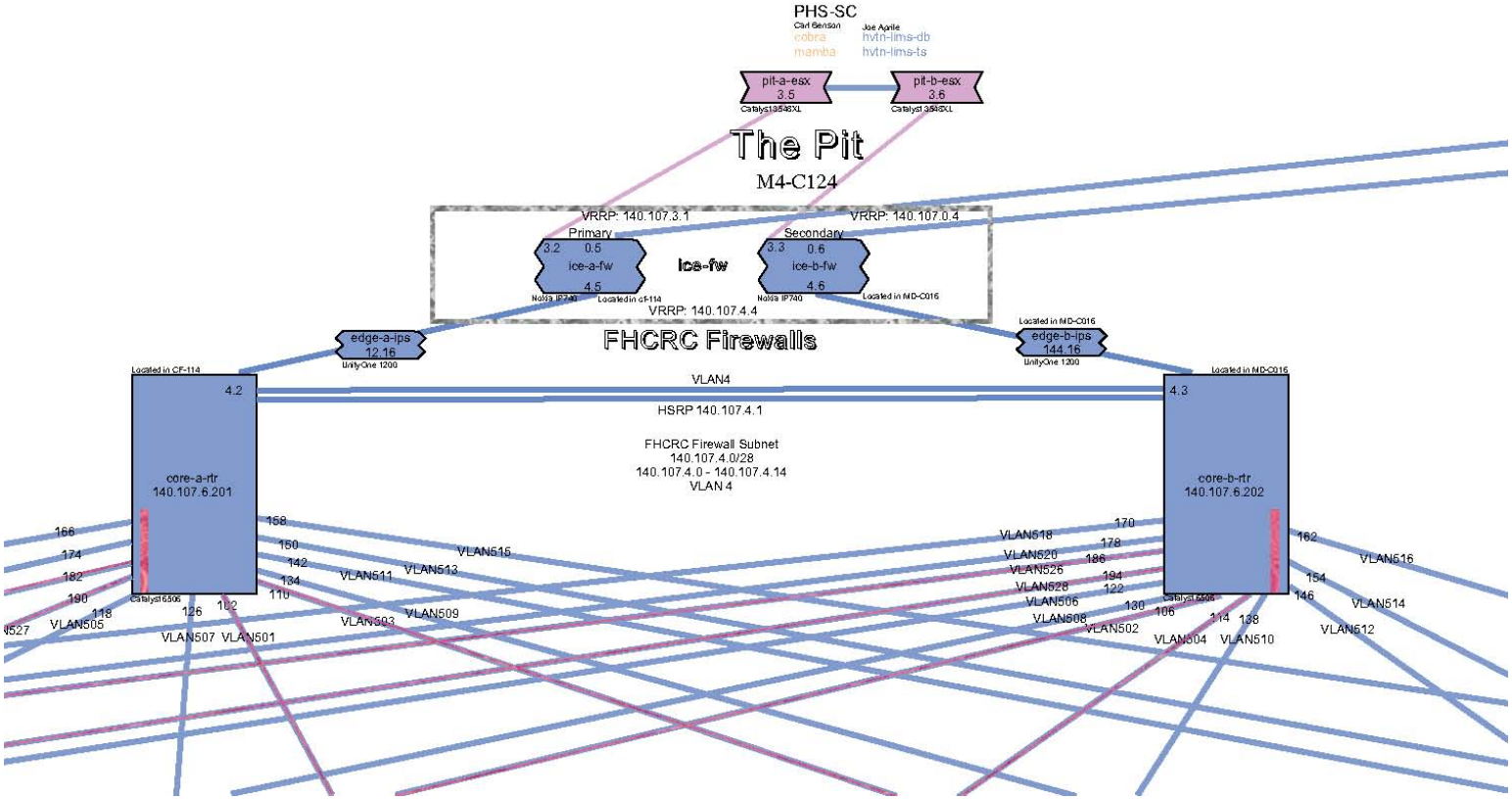

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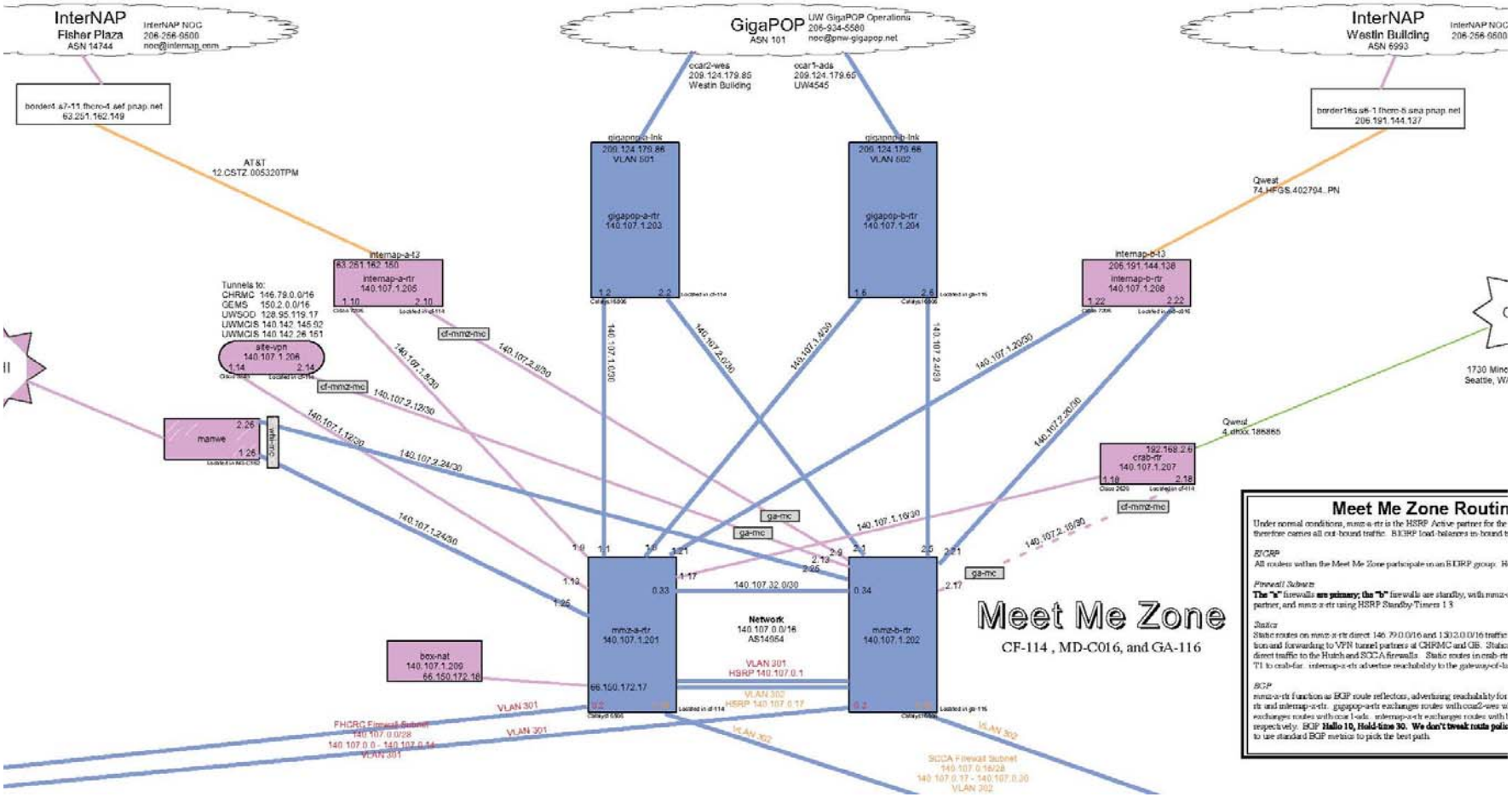
Take-Away Lessons:

- Do the math.
- Understand the architecture.
- **Test regularly**.



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Take-Away Lessons:

- Do the math.
- Understand the architecture.
- Test regularly.
- **Don’t touch it.**

Where do we go from here?

Where do we go from here?

- **We've learned some of the right things to do.**

Where do we go from here?

- **We've learned some of the right things to do.**
- **It remains to be seen if we will have the discipline to do them.**

Questions?