



The Right Space: Gains from Server Room Consolidation

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Agenda

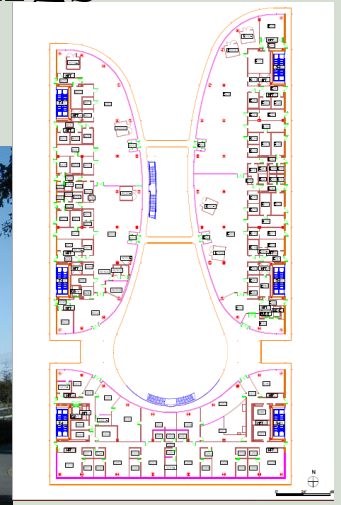
- Context
- Case Studies
 - Clark Center south server room
 - 333 Bonair server room

Context

- Stanford's Overview:
 - ~70 distributed satellite server rooms (ranging from PUE 2.94 to PUE 1.27)
 - Forsythe is the main data center (1970's era)
 - RCF at Forsythe designed for research computing
 - SRCF, larger facility under construction

Clark Center Overview

- Houses researchers from medical school, basic sciences and engineering (BioX)
- 174,000 sq. ft building with wet labs, dry labs, offices, café and two server rooms
- Among top 5 energy consuming buildings
- Annual utility costs ~ \$2.4 M



Clark Center South Server Room



940 square feet, raised floor, 2 CRAH units, on house air, UPS and on emergency power

What happened? Perfect Match

Energy Study/SEM Influences

- WBERP energy studies kicked off in 2010
- South server room highlighted as an opportunity
- Custom ERP incentives for decommissioning

Clark IT

- Clusters getting dense and power hungry
- Research computing needs growing
- Opportunity to free valuable real estate
- Overall benefit to Clark Center

Other Factors

- Energy efficient central data center for research computing
- Financial incentives made available from Provost to offset hosting costs



Decommissioning: Clark South Server Room

Economics for the Techies!

- Researchers agreed to the green option
- \$\$ savings between satellite location and data center facility (RCF)

Current (S271)
<ul style="list-style-type: none">• Est PUE 2.0• Total utility cost : \$188,007

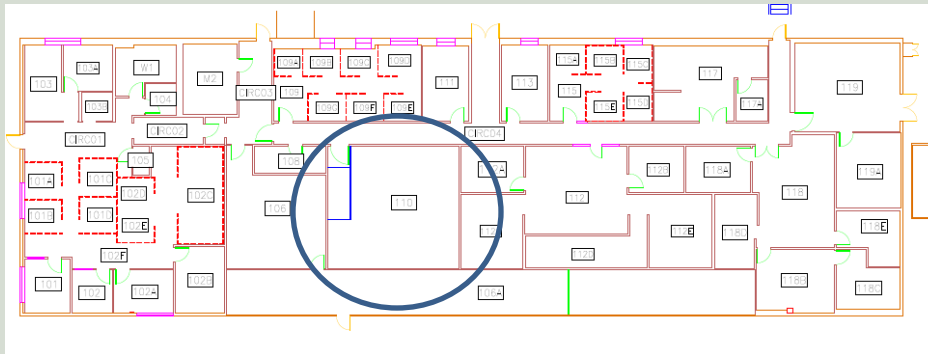
New (RCF)
<ul style="list-style-type: none">• Est PUE 1.3• Total utility cost: \$122,205

Gains from South Server Consolidation

- Flexibility (change while running old system)
- Scalability (grow with research needs)
- S271 released as real estate (bigger value) after clean close
- Great partnership between IT, researchers, SEM
- Right move for Stanford

333 Bonair Overview

- Houses facilities management and LBRE IT
- 10,550 sq. ft building with offices, controls/
high volt shop, telecom hub, and server room
- Small building



333 Bonair Server Room

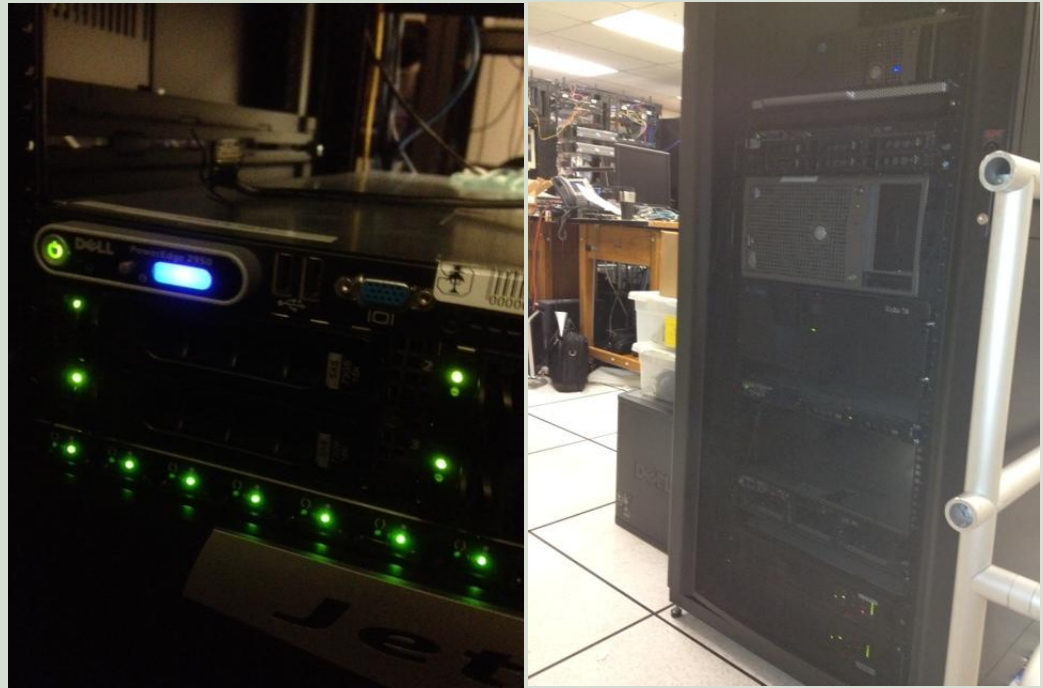
- Virtual infrastructure at Forsythe data center
- Early adopters of virtualization (80% virtual)
- P2V migration after testing/development



765 square feet, no under-floor cooling, 3 fan coils

Gains from Bonair Server Room

- Substantially smaller footprint and energy consumption
- Less cooling needed



Thank you!!!

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