**Current MCC Desktop Computing Architecture**

**Presented at the 12/11/2012 Committee of the Whole**

**MCC Network**

- **MCC “Fat” PC**
  - 1 Gbps/Copper
  - (~$650/PC)

- **Profile Server (Logins)**
  - 40 Gbps/Fiber

- **Storage Area Network (H: Drive)**
  - (Data stored in MCC Data Center)

- **MCC Firewall**
  - 1 Gbps/Copper
  - 40 Gbps/Fiber

- **Internet**
  - 100 Mbps

**Network Speed Comparison**

- 10 Gbps = 100 Lanes
- 1 Gbps = 10 Lanes
- 100 Mbps = 1 Lane
New Virtual Desktop Computing Architecture

3-Year Implementation = 30% – 40% penetration (450 – 600 workstations)

MCC Network

Internet

? 1 Mbps?

“AppSense” Profile Server (Logins)

Citrix Server Farm
XenDesktop
XenApp

Storage Area Network (H: Drive)

1 Gbps/Copper

40 Gbps/Fiber

10 Gbps/Fiber

100 Mbps

“Streaming” software applications to any device, anywhere/anytime

Investment Transfer

Thin Client
( ~$259 )
( 8-10yr MTBF )
( 78% Energy Savings )

SmartPhone
Tablets

STUDENTS

NETWORK SPEED COMPARISON

10 Gbps = 100 Lanes
1 Gbps = 10 Lanes
100 Mbps = 1 Lane

McHenry County College
“Fat” Clients versus Thin Clients

Power Consumption Data

S Class Thin Client
Smallest, most economical model

V Class Thin Client
Most powerful model

Low-end PC

Mid-range PC

High-end PC

MINIMUM
(unit operating and idle with minimum number of peripheral devices connected)

MAXIMUM
(unit operating with all peripheral ports loaded to the maximum regulation limits)

Watts/Hour

0

50

100

150

200

250

300

(.0004 cents)

(.0013 cents)

(.0057 cents)

(.0077 cents)

13.8

4.4

80.33

60.35

250.83

(.2407 cents)

188.02

(.018 cents)

(.1560 cents)

(.1079 cents)

(.0347 cents)

(.0175 cents)

(.0077 cents)

(.0057 cents)

(.0013 cents)

(.0004 cents)
Fat Clients versus Thin Clients

Power Consumption (KWH per Year)
12 Hours/Day * 200 Days/Year * 100 Computers

78% Savings
Fat Clients versus Thin Clients

Mean Time Between Failure-MTBF (years)

- Fat Client: 2 years
- Thin Client: 10 years
Thin Client Deployments at MCC

Phase 1 in Weather Center, Atrium, Bldg A Classrooms
- 125 Thin Clients
- Wyse R10L @ $349 each

Phase 2 in Library, Kiosks and Selected Classrooms/Offices
- 100 Thin Clients
- Wyse T10 @ $285 each

Phase 3 in Selected Staff Offices and Classrooms
- 200 Thin Clients
- Wyse T10 @ $259 each

Targeting Total 425 Thin Clients by Fall Semester, 2014
Dec. 2013: MCC Fat and Thin Client Counts

The College is gradually reducing the number of “fat client” PC’s and increasing the number of thin clients, with a final target of ~600 thin clients by the end of FY2015.

PC’s Leased:

<table>
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<th>Year</th>
<th>Spring 2012</th>
<th>Spring 2013</th>
<th>Spring 2014</th>
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<tr>
<td></td>
<td>485</td>
<td>310</td>
<td>~225</td>
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Using Blade Server Technology is 60% more dense than traditional servers
Phase 4 of Desktop Virtualization Begins

- Purchase 200 more Wyse T10 Thin Clients = $52,880.00

- Expand Data Center Infrastructure and Software:
  1. Additional servers to expand VMware and Citrix farm
     • 3 more blade servers in existing chassis
  2. Additional Microsoft/Citrix/VMware software licensing
  3. Capacity will support up to 350 more thin clients through FY2015
     • Targeting approx. 600 total thin clients by end of FY2015

- Lease Data Center equipment and software licenses using current Dell Master Lease Agreement
  • Not-to-exceed $15,000 implementation services
  • 5-year lease / Annual Payment = ~$49,400