A Case Study
Customer Calls In

- My system isn't running fast, but it isn't paging either

- My application formats lots of VDISKs... aren't they in memory? Shouldn't this be fast?

- I have raw monitor data... will you take a look?

- Customer sent raw monitor file 20070501 MD111606

- He says his workload uses disk volumes 1240-59 and 16C0-E3

- I took a look-see
Basic System Summary

Look at those T/V ratios! What is CP doing?
Think About the Application

- Customer says he is formatting VDISKs
- VDISKs are address spaces
- We page them when storage gets tight
- We do seem to be spending a lot of time in CP
- Let's see if DEVICE CPOWNED shows us anything
From 11:16 to 12:37 the paging devices have queues on average?
Let's look at some INTERIM reports and see what we see...
Look at that pending time on the paging volumes!
High pending time usually means channel contention...
### Configuration

**From FCX131 DEVCONF:**

<table>
<thead>
<tr>
<th>Address Range</th>
<th>Start Offset</th>
<th>Type</th>
<th>Chpid 1</th>
<th>Chpid 2</th>
<th>Online Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1240-1259</td>
<td>0008-0021</td>
<td>3390-3 (E)</td>
<td>67</td>
<td>69</td>
<td>Online</td>
</tr>
<tr>
<td>16C0-16E3</td>
<td>0050-0073</td>
<td>3390-3 (E)</td>
<td>67</td>
<td>69</td>
<td>Online</td>
</tr>
</tbody>
</table>

**From FCX161 LCHANNEL:**

<table>
<thead>
<tr>
<th>Address Range</th>
<th>Start Offset</th>
<th>Chpid 1</th>
<th>Chpid 2</th>
<th>Chpid 3</th>
<th>Chpid 4</th>
<th>Online Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00 Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Online</td>
</tr>
<tr>
<td></td>
<td>15 6 93 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Online</td>
</tr>
<tr>
<td></td>
<td>16 10 73 27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Online</td>
</tr>
</tbody>
</table>

Two ESCON chpids for all this paging DASD? I don't think so...
Recommendation

- Customer added four ESCON chpids
- (Why didn't he add FICON? Who knows...)
- He was quiet for a while, and then...
I removed 25 100% full 3990-3's from this excerpt!
So What's His Problem

- 40 3390-3 paging volumes nearly full
- 4 3390-9 paging volumes have the free space
- We can do only one I/O at a time to those gigantic model 9's
- Get rid of those mod 9's and add a lot of mod 3's
- He's working on it