



Overseeing z/OS Performance Management with Your Outsourcer

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Abstract (why you're here!)



Overseeing z/OS Performance Management with Your Outsourcer

Over the last several years, more and more z/OS shops are giving control of the management of their z/OS environments to outsourcing companies. Certainly, not to single out any company, but regarding z/OS performance management, we have noticed a trend where some companies manage with a “cookie-cutter” approach. However, a good performance management decision for one company may not be the best for another.

During this webinar, Peter Enrico and Scott Chapman will discuss how outsourced customers can oversee z/OS performance management of their outsourced environment.

EPS: We do z/OS performance...



- **Pivotor** – z/OS performance reporting and analysis software and services
 - Not just SMF reporting, but analysis-based reporting based on expertise
 - www.pivotor.com
- **Education and instruction**
 - We teach our z/OS performance workshops all over the world
 - Want a workshop in your area? Just contact me.
- **z/OS Performance War Rooms**
 - Intense, concentrated, and highly productive on-site performance group discussions, analysis and education
 - Amazing feedback from dozens of past clients
- **MSU Reduction Exercises**
 - The goal is to reduce the MSU consumption of your applications and environment
- **Information**
 - We present around the world and participate in online forums
 - <https://www.pivotor.com/content.html>
<https://www.pivotor.com/webinar.html>



z/OS Performance workshops available



During these workshops you will be analyzing your own data!

- WLM Performance and Re-evaluating Goals
 - May 12 - 16, 2025 (4 days)
- Parallel Sysplex and z/OS Performance Tuning
 - July 15 - 16, 2025 (2 days)
- Essential z/OS Performance Tuning
 - September 22 - 26, 2025 (4 days)
- Also... please make sure you are signed up for our free monthly z/OS educational webinars! (email contact@epstrategies.com)

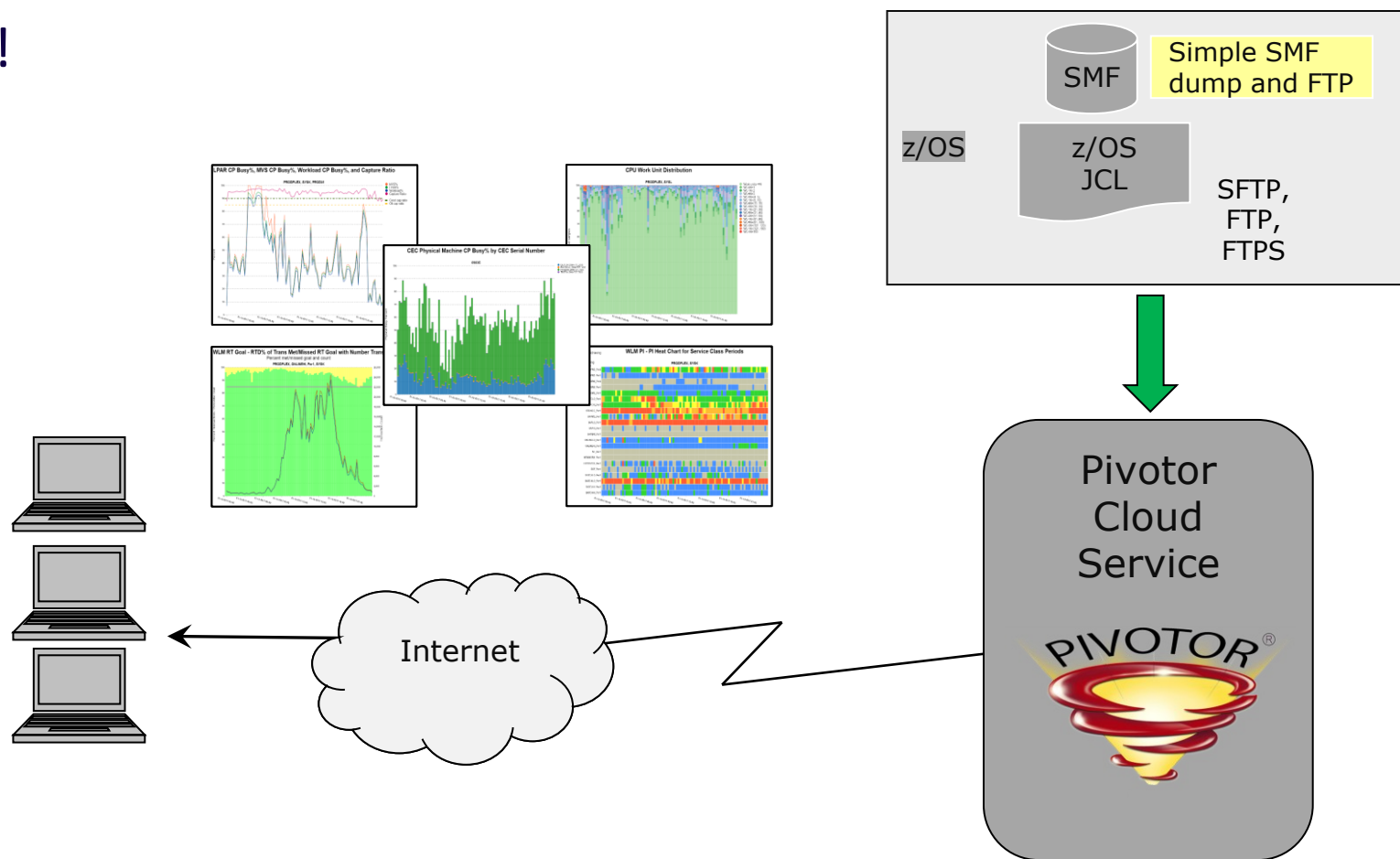
Pivotor Software as a Solution (SaaS)



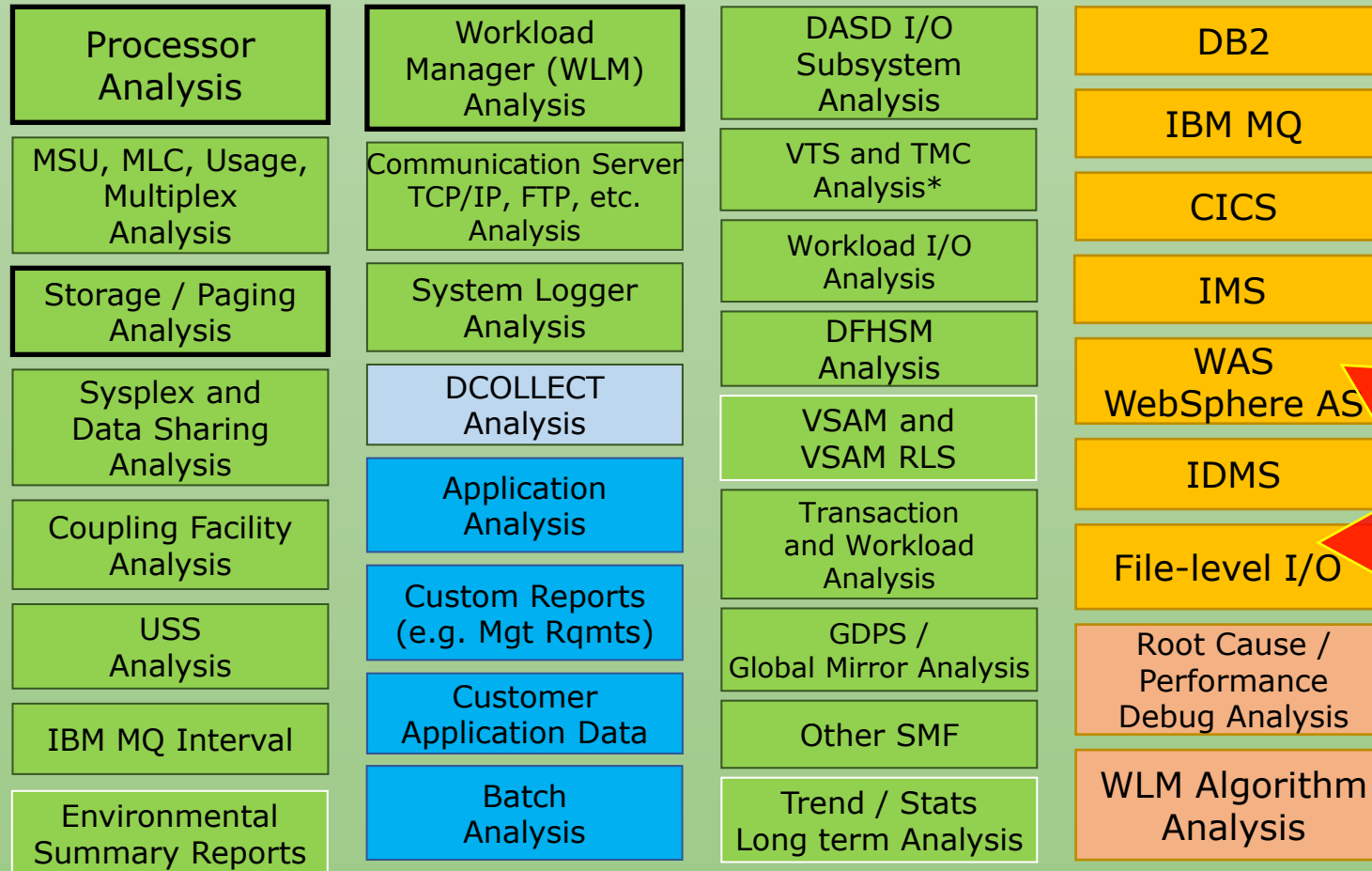
We do everything for you
so, you can focus on Analysis!

Because we also have access to
your data, SaaS Includes:

- Formal yearly cursory review / discussion
- Ability to ask us performance questions, or for us to look at a particular problem or concern. (support@epstrategies.com)
- We can occasionally look in on your data and performance
- We can participate in performance debug with IBM, or other vendors



Pivotor's Comprehensive Report Sets for Immediate Performance Analysis



**>2000 reports
"out of the box"**

Across multiple timeframes: daily, weekly, monthly, yearly, rolling n days, etc.

Like what you see?



- Free z/OS Performance Educational webinars!
 - The titles for our Spring / Summer 2025 webinars are as follows:
 - *Overseeing z/OS Performance Management With Your Outsourcer*
 - *Back to basics - Processor Consumption Analysis*
 - *Pivotor Pointers*
 - *WLM and CPU Critical Control*
 - *Back to Basics - Evaluating Latent Demand*
 - *Understanding SMF 98 Locking Measurements*
 - *Standard Measurements when Monitoring Transactions*
 - *Processor Comparison Discussion*
 - *z/OS Performance Management in an AI World*
 - *Understanding z/Architecture Processor Topologies*
 - *SMF 99 WLM Decision Making Traces*
 - *Understanding SMF 98 Address Space Consumption Measurements*
- If you want a free cursory review of your environment, let us know!
 - We're always happy to process a day's worth of data and show you the results
 - See also: <http://pivotor.com/cursoryReview.html>

Summer / Fall 2024 Webinars



- Free z/OS Performance Educational webinars!
 - The titles for our Summer / Fall 2024 webinars are as follows:
 - ✓ *What a z/OS Guy Learned About AWS in 10 Years*
 - ✓ *Advantages of Multiple Period Service Classes*
 - ✓ *Understanding z/OS Connect Measurements*
 - ✓ *WLM and SMF 99.1 – System Measurements Deeper Dive*
 - ✓ *WLM and SMF 99.2 – Service Class Period Measurements Deeper Dive*
 - ✓ *Optimizing Performance at the Speed of Light: Why I/O Avoidance is Even More Important Today*
 - ✓ *Understanding MVS Busy % versus LPAR Busy % versus Physical Busy %*
 - ✓ *Rethinking IBM Software Cost Management Under Tailored Fit Pricing*
 - ✓ *Understanding Page Faults and Their Influence on Uncaptured Time*
 - ✓ *Response Time Goals: Average or Percentiles?*
 - ✓ *Understanding and Using Enclave*
 - We would love to hear your suggestions

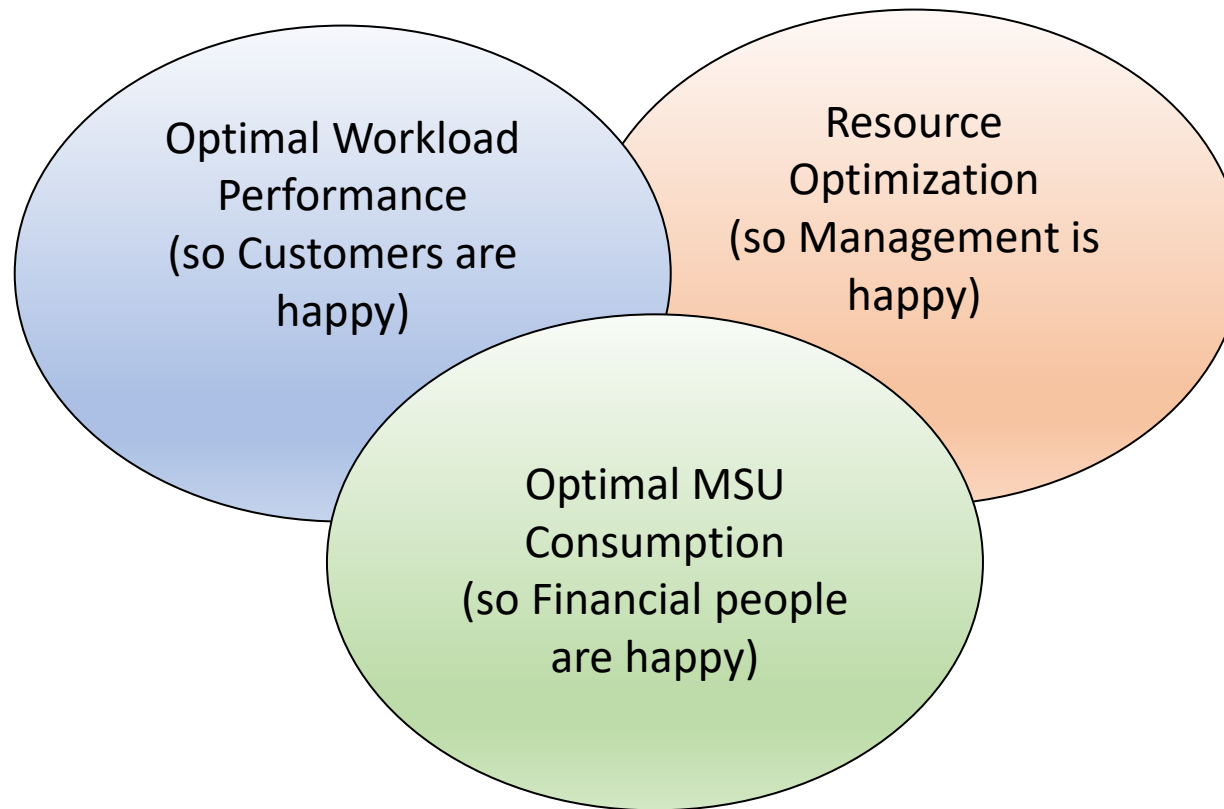


Outsourcing Background

Customer's View of Performance



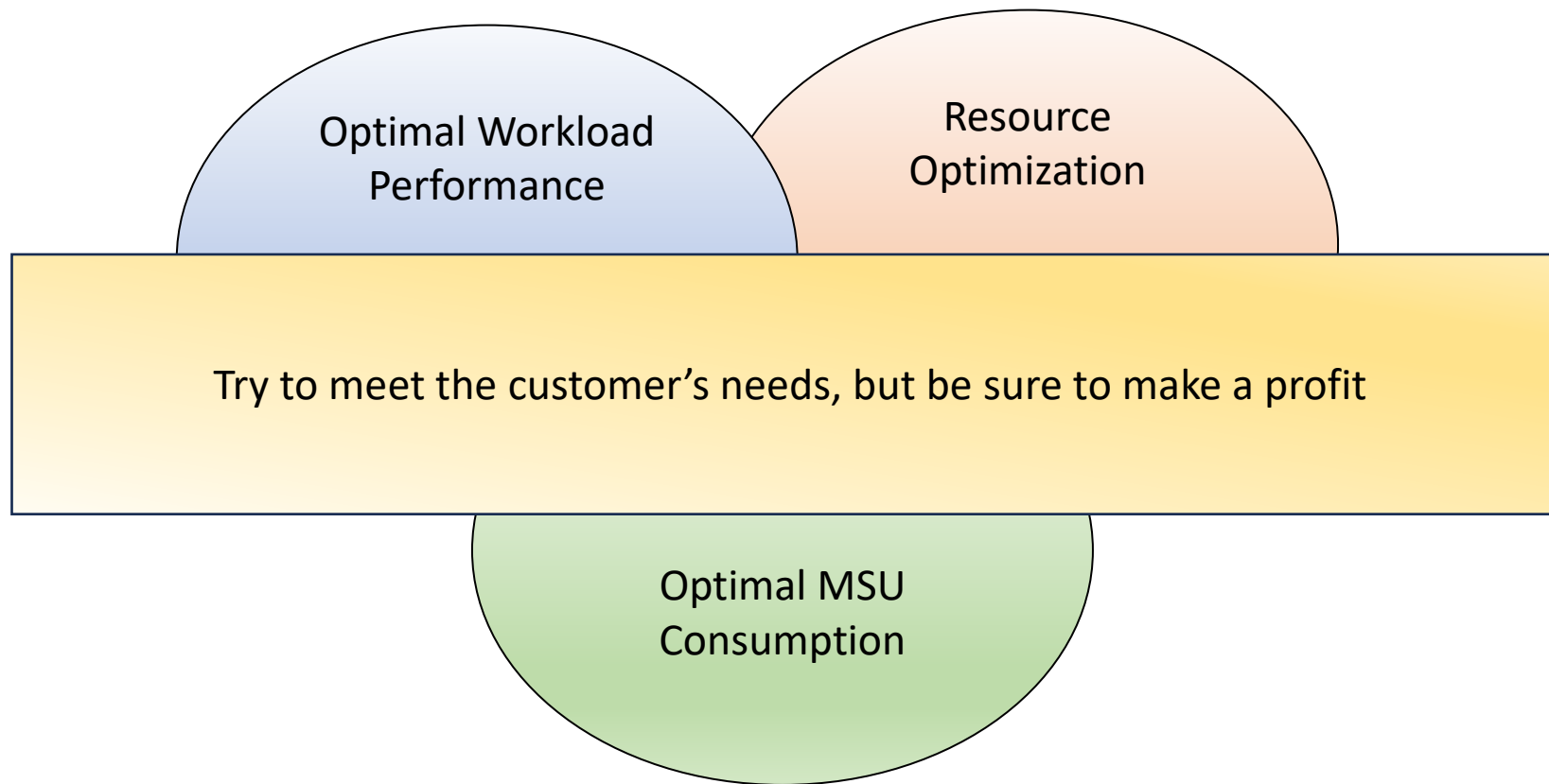
- Performance and capacity planning objectives in a customer's world



Outsourcer's View of Performance



- Performance and capacity planning objectives in a outsourcers's world



Mainframe Outsourcing Options



- There's a variety of outsourcing models depending on the managed service provider (MSP) and the customer's needs

	MSP	Customer
Owens the hardware (and IBM MLC software)	Usually	Sometimes
"Owns" the software (IBM zOTC, ISV)	Maybe	Maybe
Admins/Operates z/OS	Maybe	Maybe
Admins/Operates IBM/ISV software	Maybe	Maybe
Performance / Capacity Management	Maybe	Maybe
Security Admin	Maybe	Maybe
Application dev/support	Maybe	Maybe
Software cost management	???	Probably

Why outsource?



- There are potentially good reasons to consider outsourcing some parts of mainframe operations
 - Cost savings leveraged by the MSP's larger buying power
 - Access to skills that may be otherwise hard to find/hire
 - Enable the customer to focus on their business and not on support of mainframe
 - Keep mainframe in the mix in a cloud migration
 - "Cloud" = "outsourcing"
 - Access to newer/better datacenter technology
 - Integrated disaster recovery options within the MSP's datacenters

Outsourcing Performance Management



- Outsourcer responsibilities for PM may include the following areas:
 - Performance monitoring and analysis
 - Capacity planning
 - Workload and system tuning, as well as resource optimization
 - Performance reporting, alerting,
 - Performance investigation and problem resolution
- All of this must be done with the client's business objectives in mind
 - Must work with the client company to understand how those business objectives relate to the technical workloads
- Outsourcing of certain mainframe IT responsibilities carry a bigger risk
 - Performance management and capacity planning
 - Security

Client Objectives versus MSP Objectives



- Remember that the outsourcer's business objectives are not the same as the client's business objectives
 - The outsourcer is there to assist the business, but they also need to be a profit center
- A client outsources for a variety of reasons, including long term cost savings, while the outsourcer is simultaneously pricing to make a profit
 - Always remember, it is client, not the outsourcers, that is ultimately responsible to the business



Issues to be aware of: Business Risks

Issue:

Client chooses wrong outsourcing model



- As mentioned, there are a variety of outsourcing models to choose from, but the client sometimes does not choose the best long-term model
 - And then locked into an agreement with little control of some key area
- Some issues include:
 - Wrong model choice can result in poor outcomes and performance management
 - Examples: Lack of customization, inability to influence decisions, different standard, etc.
 - Can lead to hidden costs, and a disconnect with the client's business objectives



Issue:

Hidden costs, gold plating, feature creep



- Many times, the original agreement looks great, but as changes need to be made, the costs can increase
- Some issues include:
 - Deviations from agreements can be costly
 - Client resources will be needed to manage outsourcer decisions and communication
 - Long-term contract lock in may be costly to change or withdraw from agreement
 - Client trying to contain hidden costs may make suboptimal decisions
 - Get only basic performance reporting rather than customer or advanced reporting



Issue:

Loss of performance management control

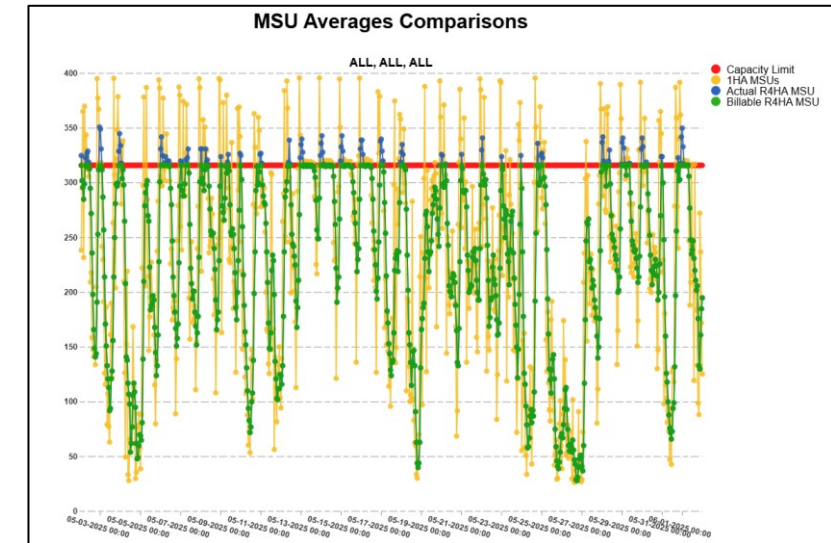


- Clients effectively give up some level of control over their environments
 - While IT management may be streamlined, it tends to result in less control
- Some issues include:
 - Once IT operations are handed off, client may no longer have final say in some areas
 - Change management is usually dictated by the outsourcer
 - Many outsourcers limit the client's ability for customization
 - Certain outsourcer decisions may not align with the client's business needs
 - Many times, decisions may be driven by outsourcers' priorities

Issue: Insufficient Performance Reporting



- Performance reporting may be limited
 - Only selected data may be is provided to the client
- Some issues include:
 - Many outsourcers insist on using their own propriety home-grown solutions that are usually geared towards their objectives and not the client's
 - Not all metrics may be available to client
 - Reports emphasize SLA compliance and not customer KPIs
 - Can result in delays in performance problem resolution
 - Business metrics not usually integrated into performance metrics
 - May be extra charge for custom reporting
 - Long-term data may be overly summarized



Issue:

One size does not always fit all



- Many times, outsourcers conduct vanilla performance management with ‘cookie cutter’ approach to performance management
- Some issues include:
 - Template performance management regardless of business goals or workload patterns
 - Business context is not always considered
 - A particular performance approach for one client may be totally wrong for another
 - Possible missed opportunities that may be unique to the client’s business
- While there are usually general recommendations...
 - Remember that every customer and environment is unique
 - Need to customize to the situation



Issue:

Outsourcer cost savings vs what is best for client



- Remember that outsourcer needs to provide the service for a reduced cost to the client while still making a business profit
 - This could result in trade-offs that might not be best for client
- Some issues include:
 - Outsourcers incentive to minimize costs may lead to short term savings at the cost of long-term performance benefits
 - Outsourcers, again, falls into the cookie cutter trap
 - Creative solutions are not always explored and 'one size fits all' take precedence
 - Focus on efficiency rather than effectiveness to the client

Issue:

Client limited control over outsourcer staff



- It is usually difficult or impossible for the client to control or select the outsourcer's staff
 - Vetting of those working on your systems is no longer done by client, but is now done by the outsourcer
 - What protections are in place to ensure the business and security are in the best hands
- Some issues include:
 - Many times, client has not different influence, or oversight, or outsourcer staff
 - Outsourcers can have inflexible staffing models
 - Outsourcer staff can be many time zones away
 - Many times, client may not even know who is making the decision or doing a change

Issue:

Increased layers of communication



- There are usually additional layers of communication and processes, which in turn may complicate timely performance management of environment
- Some issues include:
 - Communication delays
 - Slower change management, even for small changes
 - Client's frustration with pace of changes
 - Outsourcers tend to have strict operational procedures that do not always align with client's needs



Issue:

Misaligned capacity planning objectives



- Sometimes critical infrastructure decisions benefit the outsourcers more than the client
 - You must have an understanding of the client's business to do CP, and who better than the client?
- Some issues include:
 - Sometimes hardware and software upgrades are driven more by the outsourcer's cost models, vendor relationships, and infrastructure preferences
 - Not always optimal hardware and software choices
 - May not align with client's performance and capacity needs
 - Often clients will not be aware of behind-the-scenes relationships or driving factors
 - E.G. Outsourcers can't use Tailored Fit Pricing
 - Outsourcer decisions may not always align with client's business objectives
 - E.G. is there some new hardware feature that would help the business?

Issue:

Mismatch between expectations and deliverables



- After an agreement is signed, there is always some gap between customer expectations and outsourcer deliverables
- Some issues include:
 - Contracts are high-level, and leave room for interpretation
 - Metrics gauging success may not align
 - Remember, SLAs generally document the worst case, and clients are interested in user experience
 - Many clients expect outsourcer to act as a business partner by offering proactive insights and improvements
 - But many times, the outsourcers are reactive, and adhere to their profit model
 - Client's get frustrated by outsourcer's inflexibility
 - Overtime, frustrations can grow

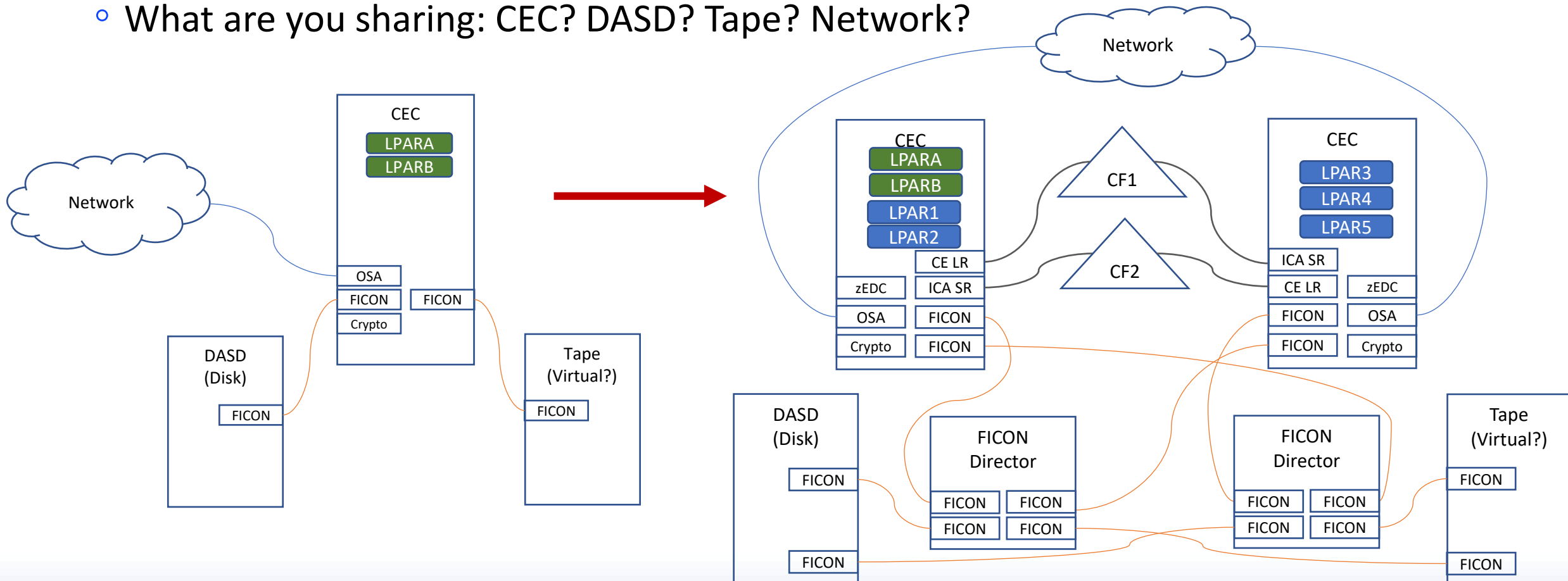


Issues to be aware of: Technical Risks

Issue: Consolidating to a shared environment



- Smaller environments are often consolidated onto shared hardware
 - This may provide the potential for larger cost savings
 - What are you sharing: CEC? DASD? Tape? Network?



Issue:

Small → Large machine migration/consolidation



- You may end up changing processor “speed” too
 - E.G. z14 ZR1 J05 at 147 MSUs → “Allocated” 147 MSUs from z17 609 at 1535 MSUs
 - The z14 was 29 MSUs/CP and the z17 is 170 MSUs/CP
 - Migrated workload is less than 10% of the new machine
 - LPARs will probably have fewer logical CPs
- While recorded CPU time will go down, net effect may still be negative
 - Fewer LCPs = more potential CPU wait
- It would not be surprising to see the migrated LPARs consuming more MSUs on the new environment
 - Fewer LCPs = less L1 cache for the LPARs
 - Sharing with other LPARs = more higher-level cache contention

Issue:

Must review configurations



- WLM policies should be reviewed whenever anything significant changes in the environment
 - Migrating to a new processor is certainly significant! (Especially if shared!)
 - Velocity goals quite likely may need adjustment
 - Period durations may need to change
 - Reviewing all goals while you're there is not a bad idea
- Sometimes may need to make other configuration changes
 - I.E. moving to slower/faster CPs may mean CPU limit changes
- New hardware capabilities usually require config changes to exploit
- Recompile with new ARCH level to take advantage of new processor



Mitigations and Recommendations

Maintain PM/CP oversight



- While you may outsource performance management, some level of oversight needs to remain with the business
 - A once a quarter CIO review meeting is probably insufficient
 - Retain some technical staff that can interface with the outsourcer
- Even better: don't outsource performance/capacity management
 - I.E. keep your performance and capacity people
 - Capacity planning is especially closely tied to business processes, so having those people in-house can be helpful
- Compromise: use a third party to help manage and/or audit performance and capacity
 - Would be best if this party has people to work with below the CIO level

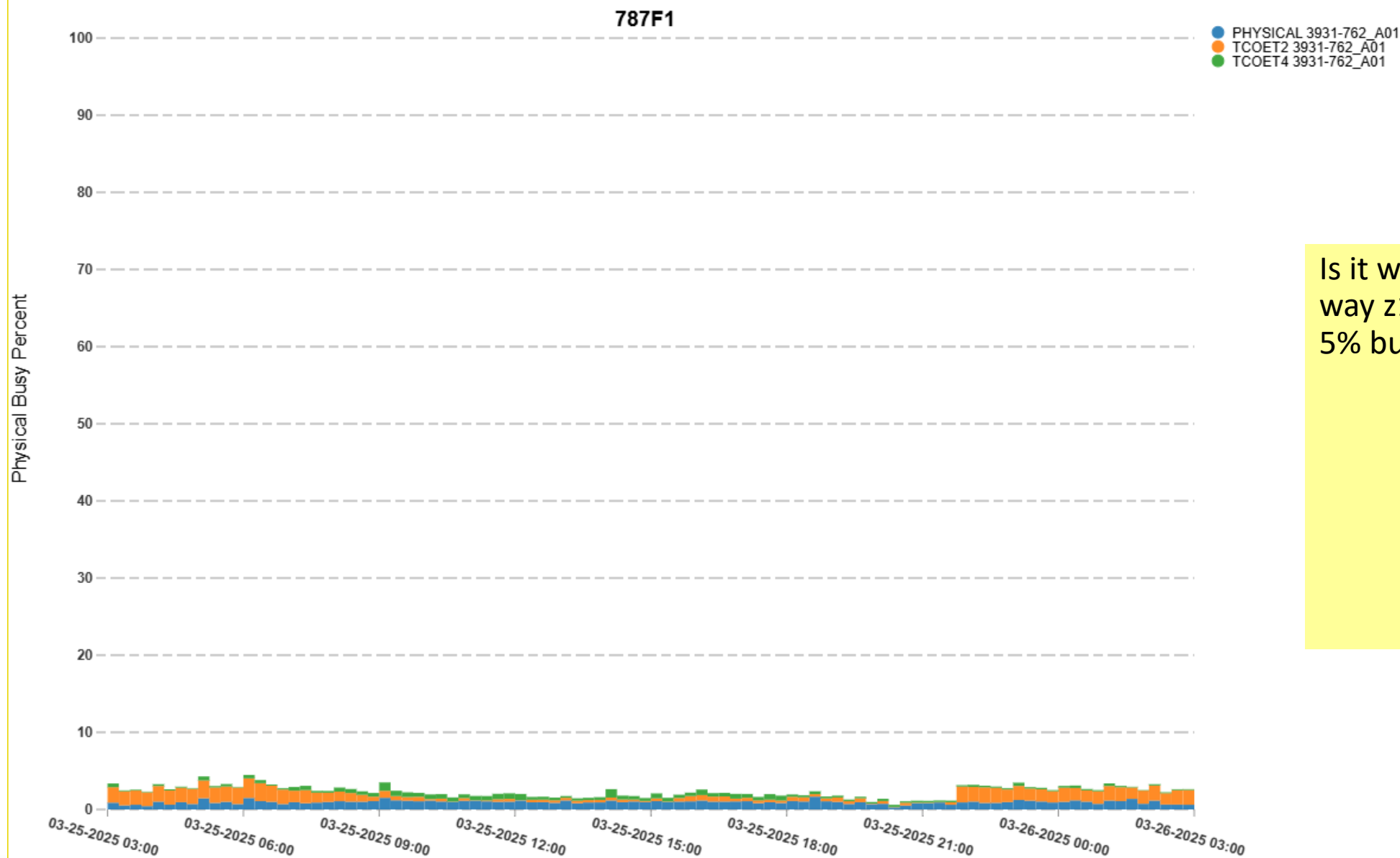


Retain the control of your SMF data



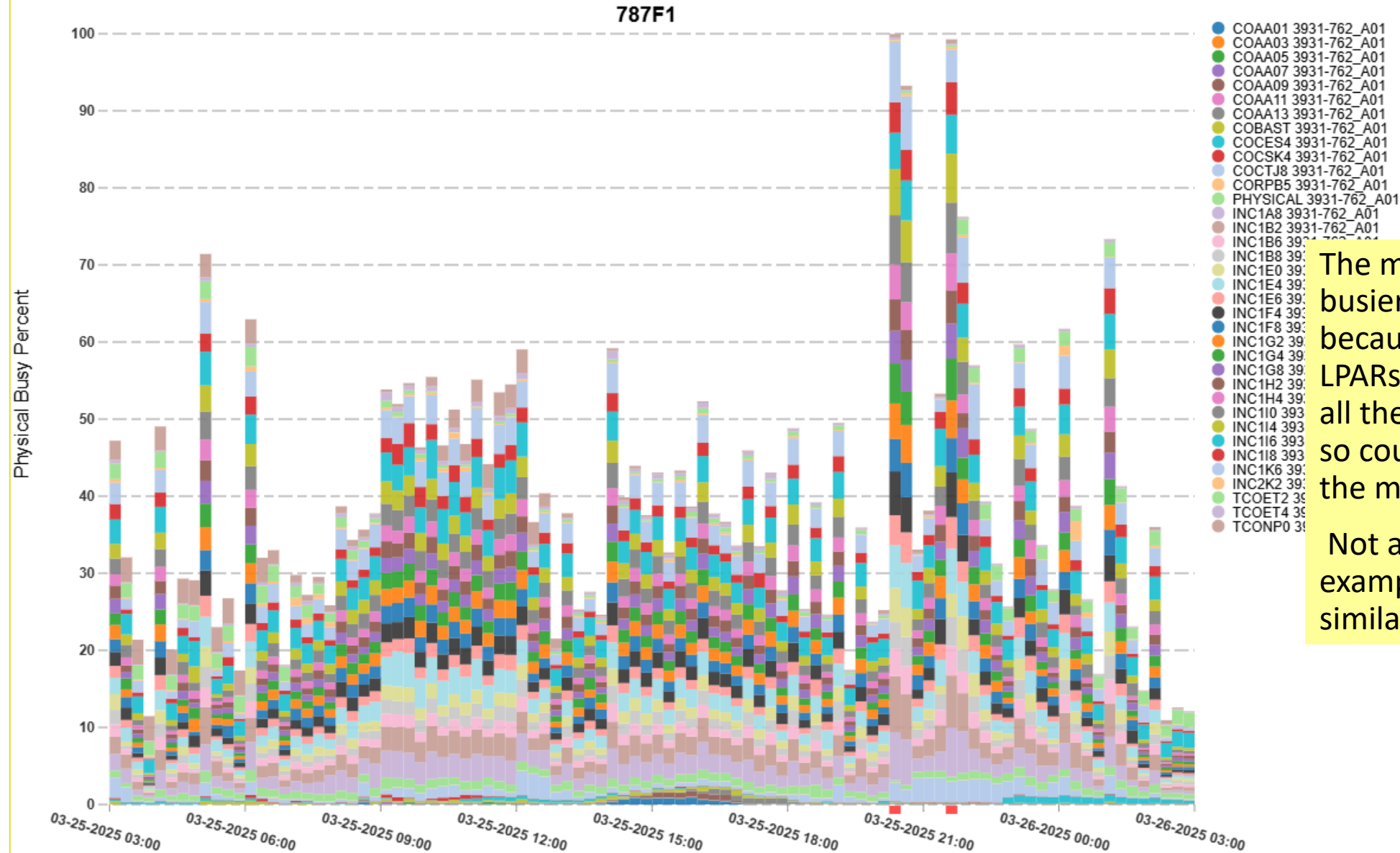
- We've occasionally heard customers say "our outsourcer won't let us send the SMF data to anybody"
 - We think that's very bad as it limits your ability to investigate performance and capacity issues
- Even if you have access to the SMF data, you may not be able to see the entire picture
 - I.E. the LPAR security controls set on the HMC may prevent your LPAR from "seeing" all the other LPARs on the machine
 - This may be fair, although it does complicate some analysis

CEC Physical Machine CP Busy% by CEC Serial Number



Is it weird to have a 62-way z16 that's less than 5% busy?

CEC Physical Machine CP Busy% by CEC Serial Number



The machine is actually busier than first thought because those TCOET* LPARs just couldn't see all the other LPARs and so couldn't tell how busy the machine was.

Not an entirely real example, but we've seen similar situations.

Set meaningful performance targets

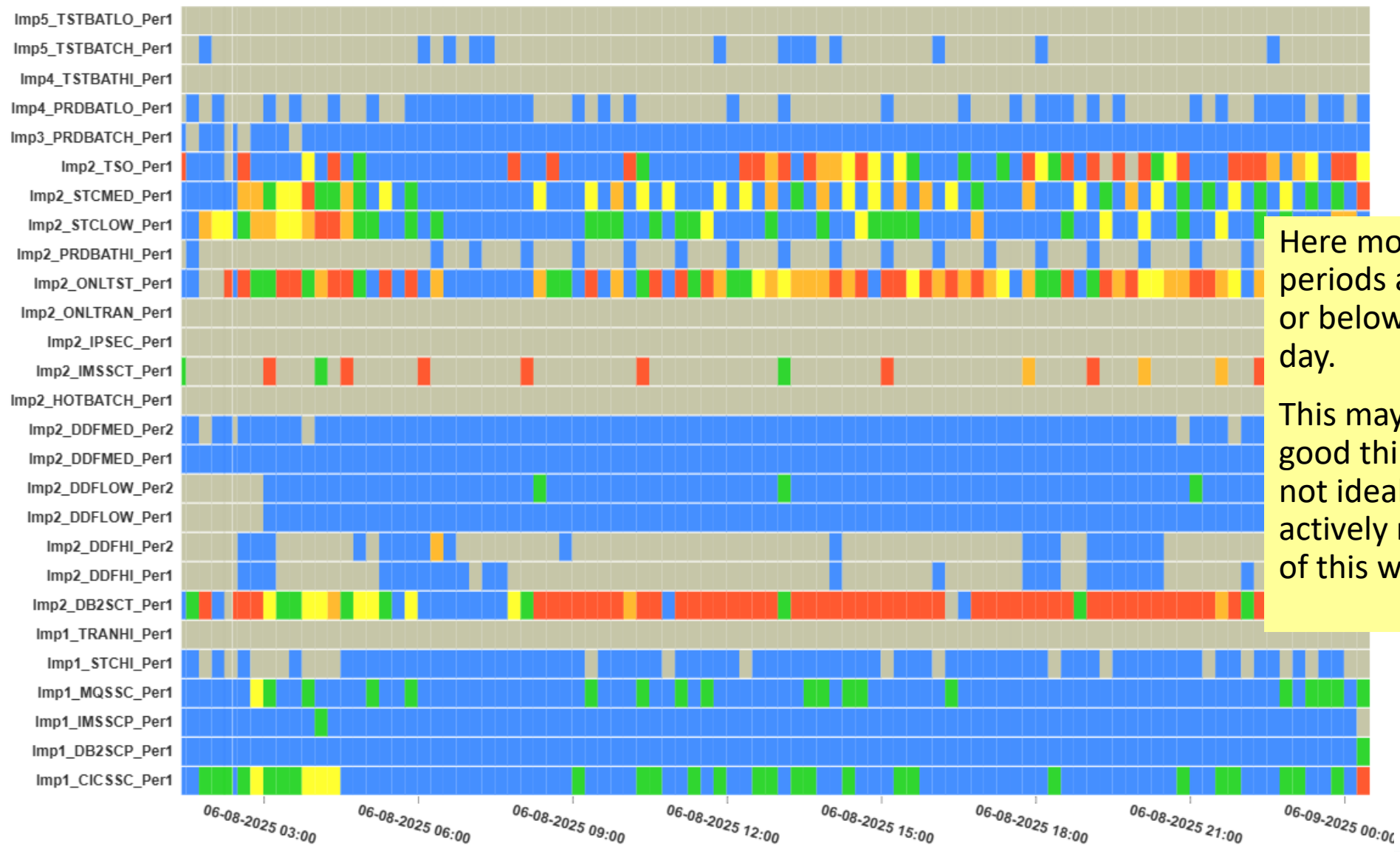


- Remember that SLAs tend to document worst case scenarios
 - SLAs should be set to measures that are useful and relevant
 - Should be reviewable/adjustable over time
- Performance SLAs should be
 - Specific
 - Measurable and reportable from readily available data sources (SMF, log data)
 - Achievable in your current environment, or your expectation for the new environment
 - Relevant to your business and reflective of the business needs
 - Tied to contract penalties if missed over some time-period
- Bad: all Performance Indexes will be 1 or less
- Good: Batch window will complete by 5 AM
- Good: 95% of (some subset of) CICS transactions complete in < 500ms

WLM PI - PI Heat Chart for Service Class Periods

- ≤ 0: Zero
- ≤ 0.81: Over Achieving
- ≤ 1.1: Met
- ≤ 1.4: Fair
- ≤ 1.99: Warning
- higher: Severe

PRODPLEX, SYSA



Here most service class periods are at a PI of 1.1 or below for most of the day.

This may seem like a good thing, but it is likely not ideal as WLM is not actively managing most of this work.

Be aware of business risks/changes

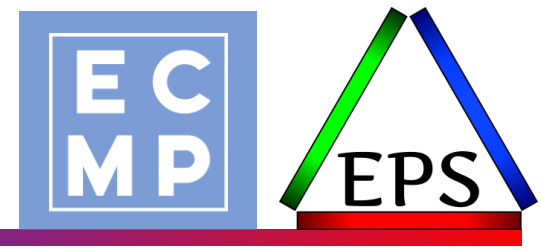


- Things will change!
 - Set expectations for both sides of the table
 - Set expectations all the way up the management chain
- Make sure you understand how things will work after outsourcing
 - Change control expectations in particular
- Make sure you're solving a real problem or achieving sufficient savings to justify the risks
 - Outsourcing can also offload some risks (such as finding people)
 - But don't trade one problem for larger problems



Summary

EPS/ECMP Services Available



Out-sourcing is more likely to happen as customers struggle to find their own resources. It is critical that performance, capacity and cost management is retained or overseen by the customer. EPS and ECMP works as an extension of our customers teams, to ensure the environment is provisioned and optimized to provide a win for all parties. Our services include:

- Independent Performance and Capacity Assurance as part of the customer's oversight team
- Environment reviews to provide a list of areas that can be optimized and the complexity of any potential project. This often results in a complete optimization engagement across the system and application areas.
- Baseline any agreements and determine where the pricing should sit based on real like sized environments.
- Set-up independent performance reporting using Pivotor. This will provide a set of reports to allow the customer to monitor both performance and consumption trends. The reporting can be tailored as needed to reflect the application stack.

