

The Benefit of Leveraging System z with IBM Cognos 8

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**INNOVATE,
OPTIMISE
AND PERFORM**
FOR SMARTER
BUSINESS
OUTCOMES

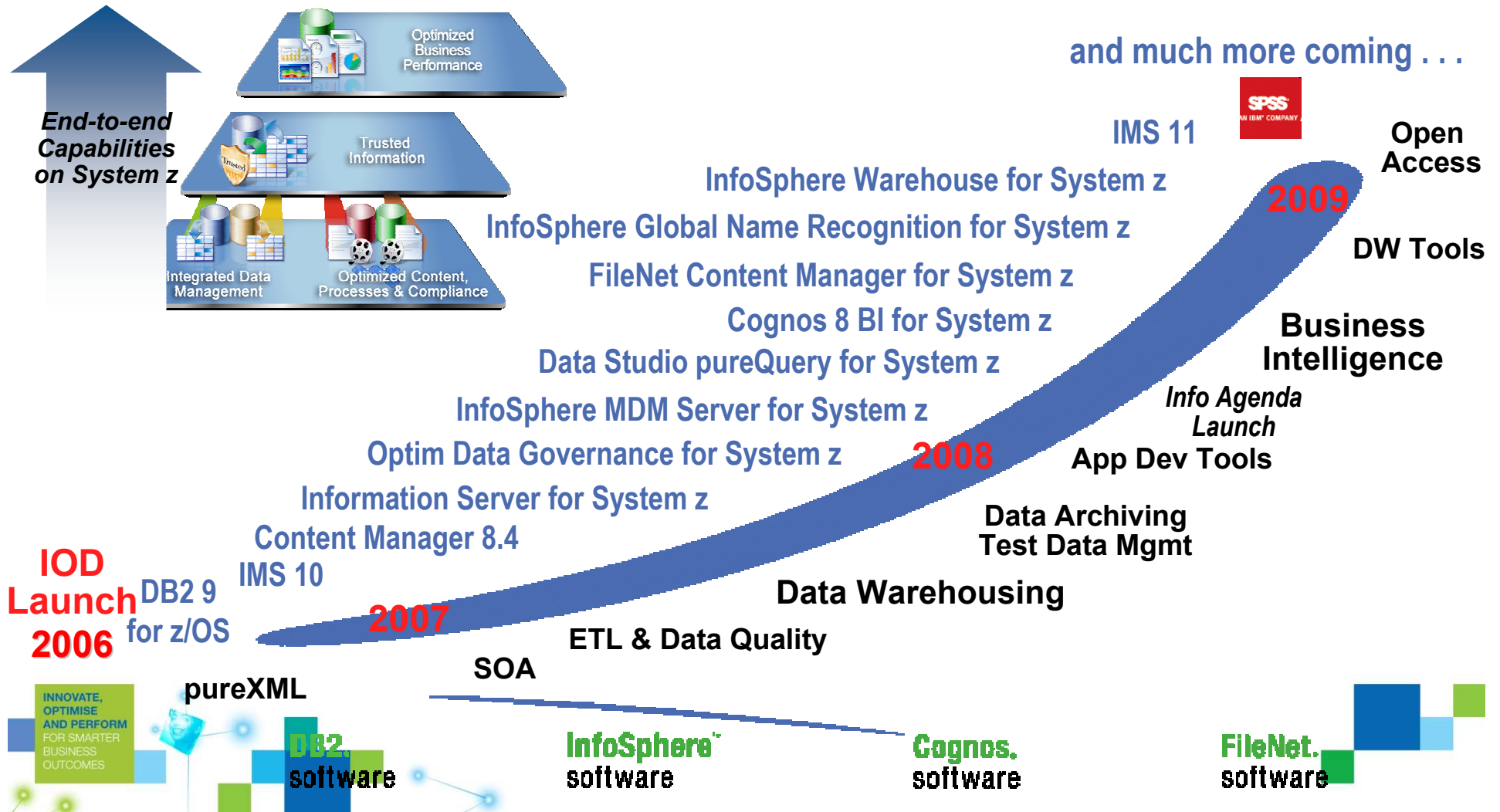


Leveraging System z for Information On Demand

IBM Information
 >>> On Demand
 2009

More new capabilities delivered in the past 3 years than at any point in the mainframe's history

and much more coming . . .



IBM Information

>>> On Demand

2009

The Benefit of Leveraging System z with IBM Cognos 8



**INNOVATE,
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Agenda

- Short introduction Numius
- Cognos in Information Management from the partner perspective
- A functional demonstration of Cognos on System z
- Results of a client PoC for Cognos on System z in a joint effort between IBM SG Bel, IBM Montpellier and Numius



Numius team

Leading provider of Performance Management Solutions in Benelux.

30+ highly skilled and professional consultants.

Full range services, from Vision Creation, Business Analysis to Implementation, Architecture, Operations and Outsourcing.

Multi-industry, multi-function experience.

Focus on long-term partnerships.

Trusted advisor role.



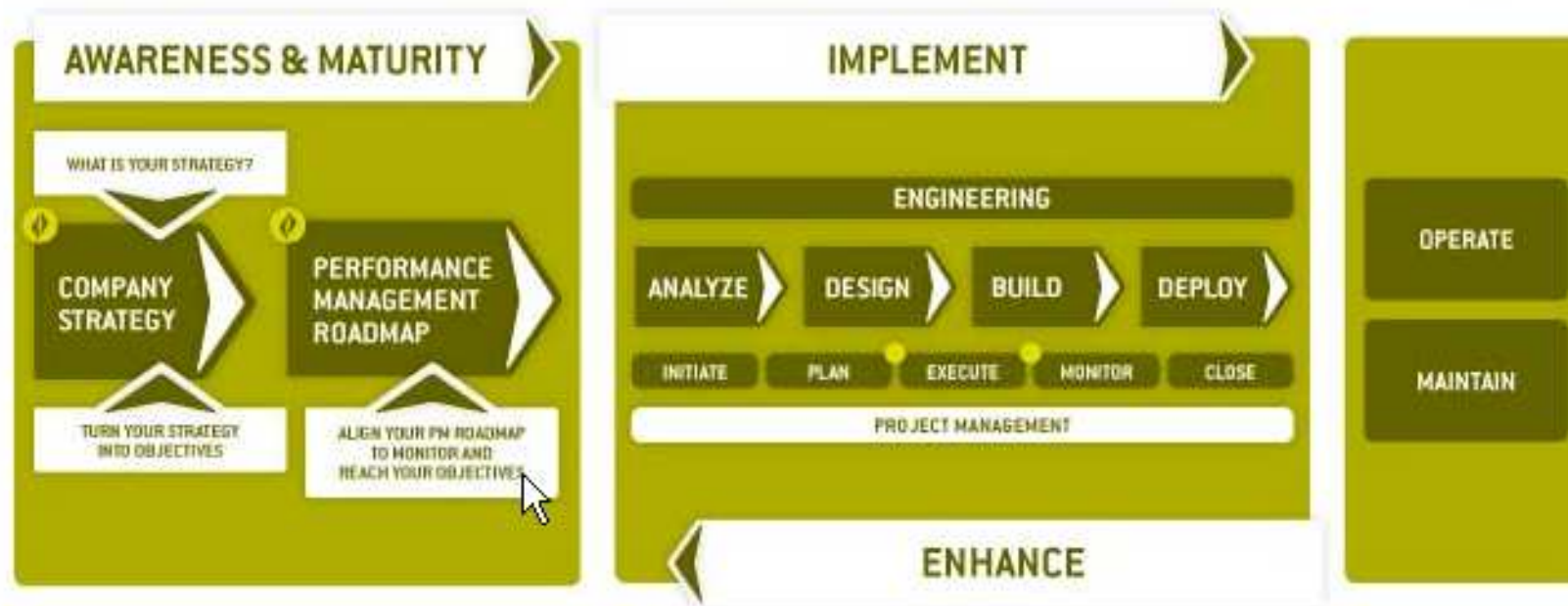
IBM Information

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2009



Numius activities

PERFORMANCE MANAGEMENT ROADMAP ALIGNED WITH STRATEGY



Performance Management roadmap aligned with strategy.



Numius-IBM relationship

Cognos.
software

- 2009 Partner of the Year
- 2008 Only Platinum Partner in BeLux
- 2007 Platinum Reseller
- 2007 Partner of the Year
- 2007 Reseller of the Year
- 2006 Partner of the Year
- 2005 Enterprise Planning Partner Award
- 2004 Business Intelligence Partner Award



- IBM Advanced Business Partner



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Cognos in Information Management

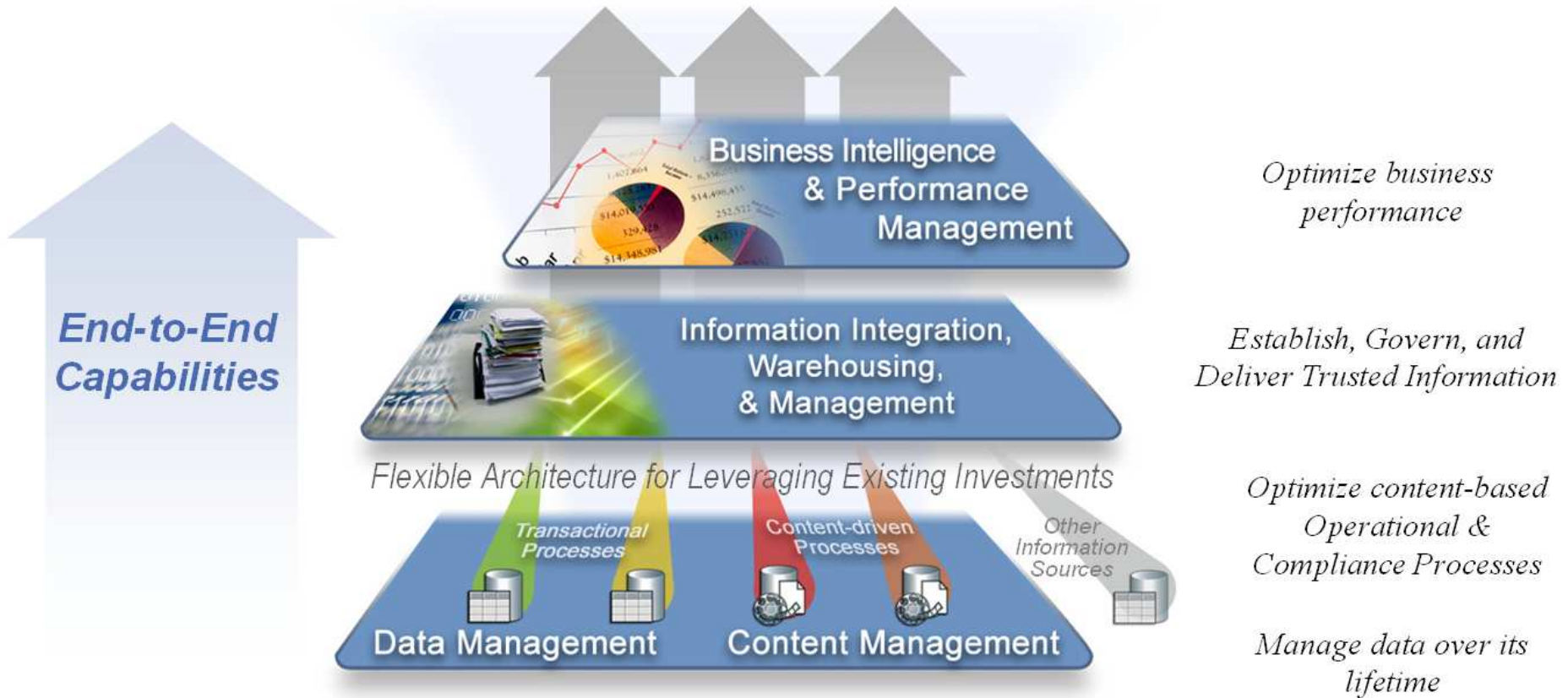


**INNOVATE,
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Information On Demand

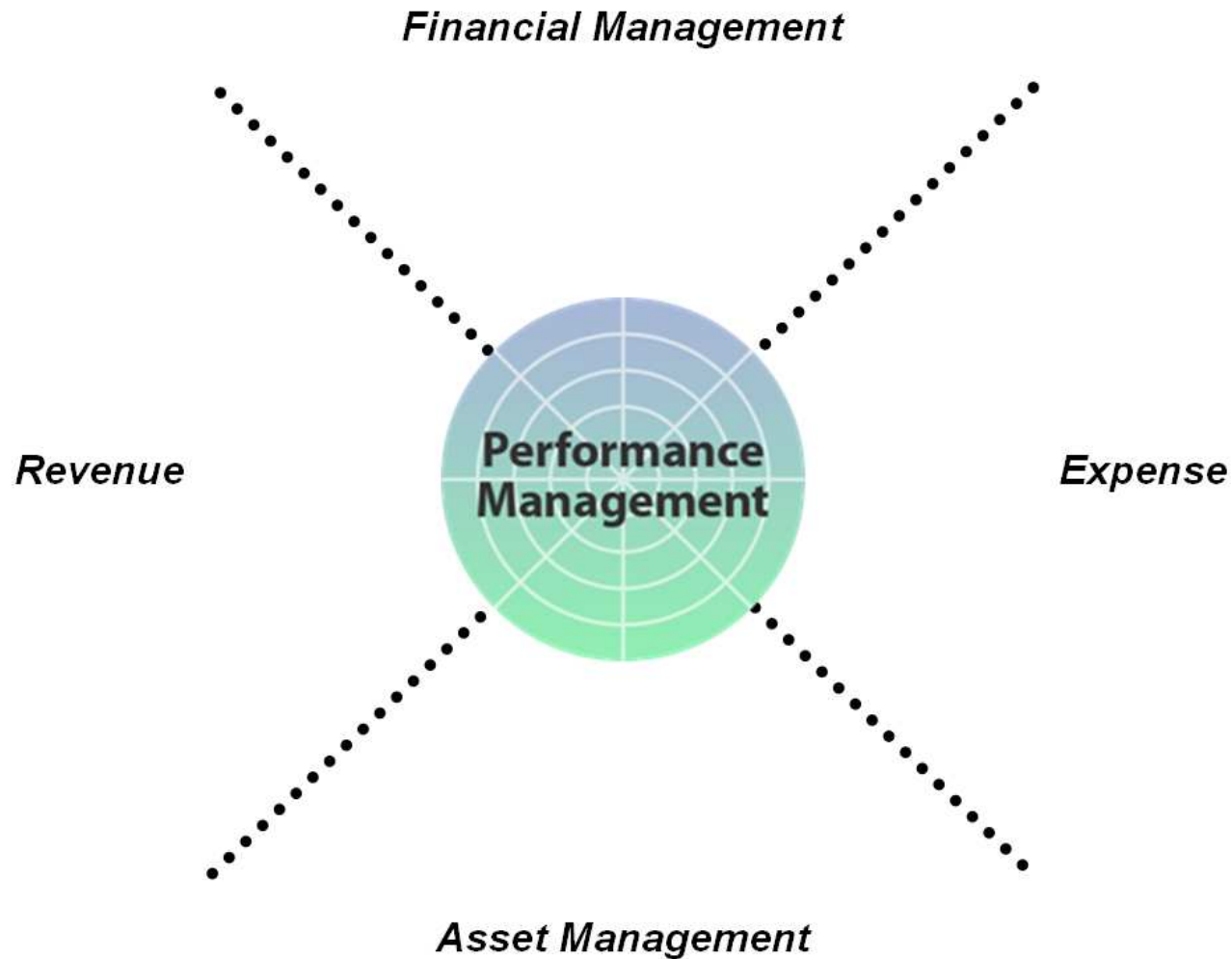
Unlocking the Business Value of Information for Competitive Advantage

Financial *Workforce* *Dynamic*
Customer & Product *Risk Insight* *Optimization* *Supply Chain* *Multi-Channel*
Profitability **Business Optimization** *Marketing*



Business Intelligence & Performance Management

A complete platform to plan, understand and optimize performance



Business Intelligence & Performance Management

Identify Issues

How are we doing?

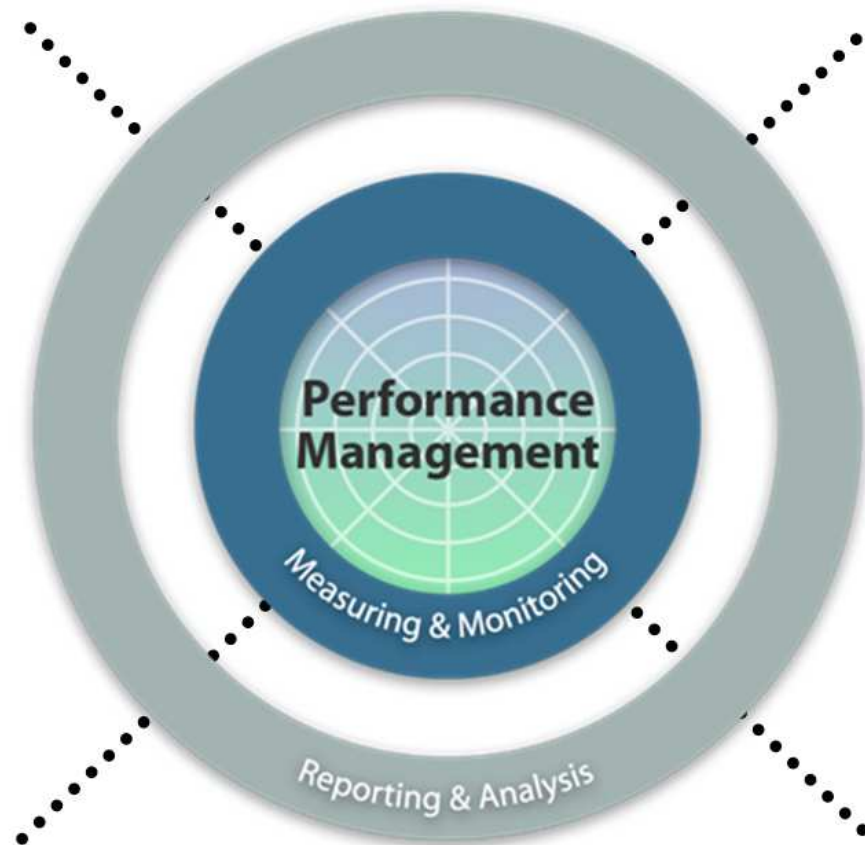


Scorecard or dashboard shows **Profit** is below plan

Business Intelligence & Performance Management

Explore and Understand Issues

- How are we doing?
- Why?



Report shows **Cost of Goods Sold** is rising due to increase in fuel costs

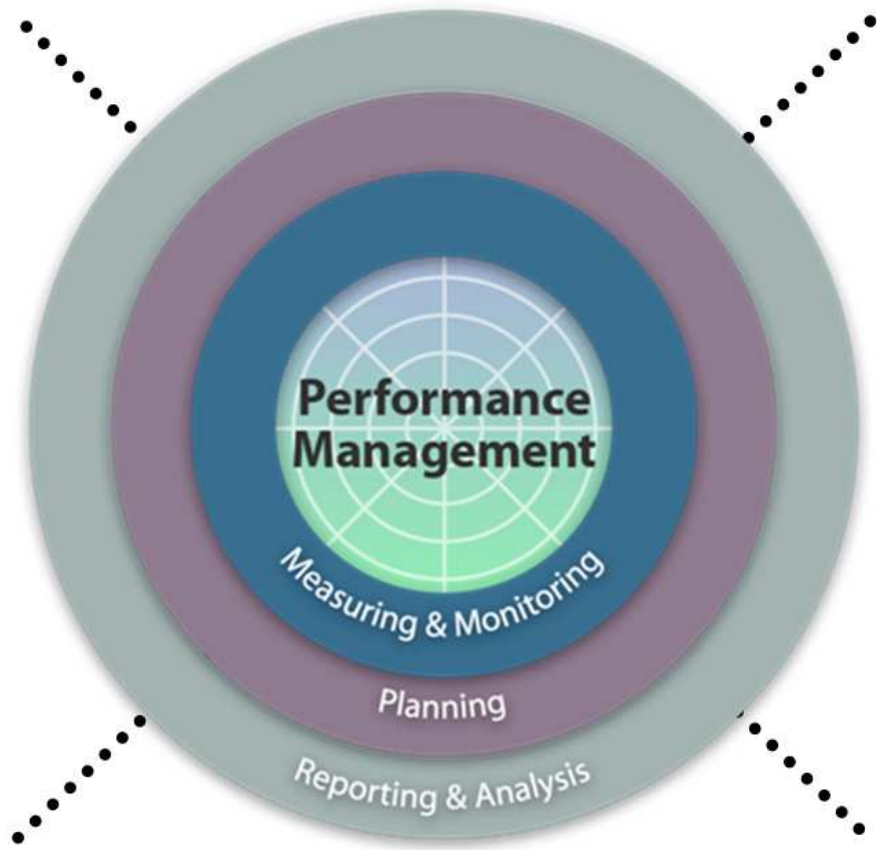
Business Intelligence & Performance Management

Resolve Issues and Plan for the Future

How are we doing?

Why?

What should we do?



Act	94.5	100.0	100.0	24
Act	75.5	80.3	80.8	41.9
Medium	44,825	44,000	45,000	1.7
Jan 2	74.3	75.1	75.6	13.8
Prophet	13.9	13.9	13.9	2.8
Contribution	3.1	3.4	3.4	3.9
Expense (LC)	2.9	2.7	2.8	6.4
Expense	3.1	2.9	2.9	18.8
Development	7.4	7.5	7.5	2
Act Mgt	17.9	17.9	17.9	5
Acting (DL)	2.8	2.8	2.8	8.3
Expense Labor (Ttg)	50.2	50.5	50.5	154.7
Expense Office (PG)	6.3	6.3	6.3	25.9
Total Corporate Expenses	147.5	147.5	147.5	14,262
Total Other	21.1	21.1	21.1	27.3
Expenses	17,432	17,432	17,432	14,289

Plan is updated to adjust for rising fuel costs...provides understanding of impact to other expenses and profit

Demonstration



Results of PoC of Cognos on System z

Beyond demonstrations...



IBM Information

>>> On Demand

2009

A joint effort of IBM Software Group Belgium,
IBM Montpellier and Numius

Description, Objectives and Technical architecture



Our Client:



- Offers data services to **+10.000** Belgian companies.
- Uses **Cognos 8** for internal and B2B external communication.
- Faces **strong degrading performance** with growing customer base.



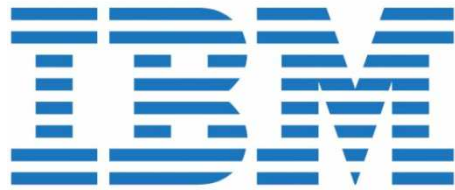
Our Client's goals:



- Solve scalability & performance issues.
- Centralizing & outsourcing.
- Economies of scale.
- Improve user (= customer) experience.



IBM's goals:



- Prove that Cognos for Linux on System z *can* do this!



Numius' goals:



numius
PERFORMANCE
MANAGEMENT

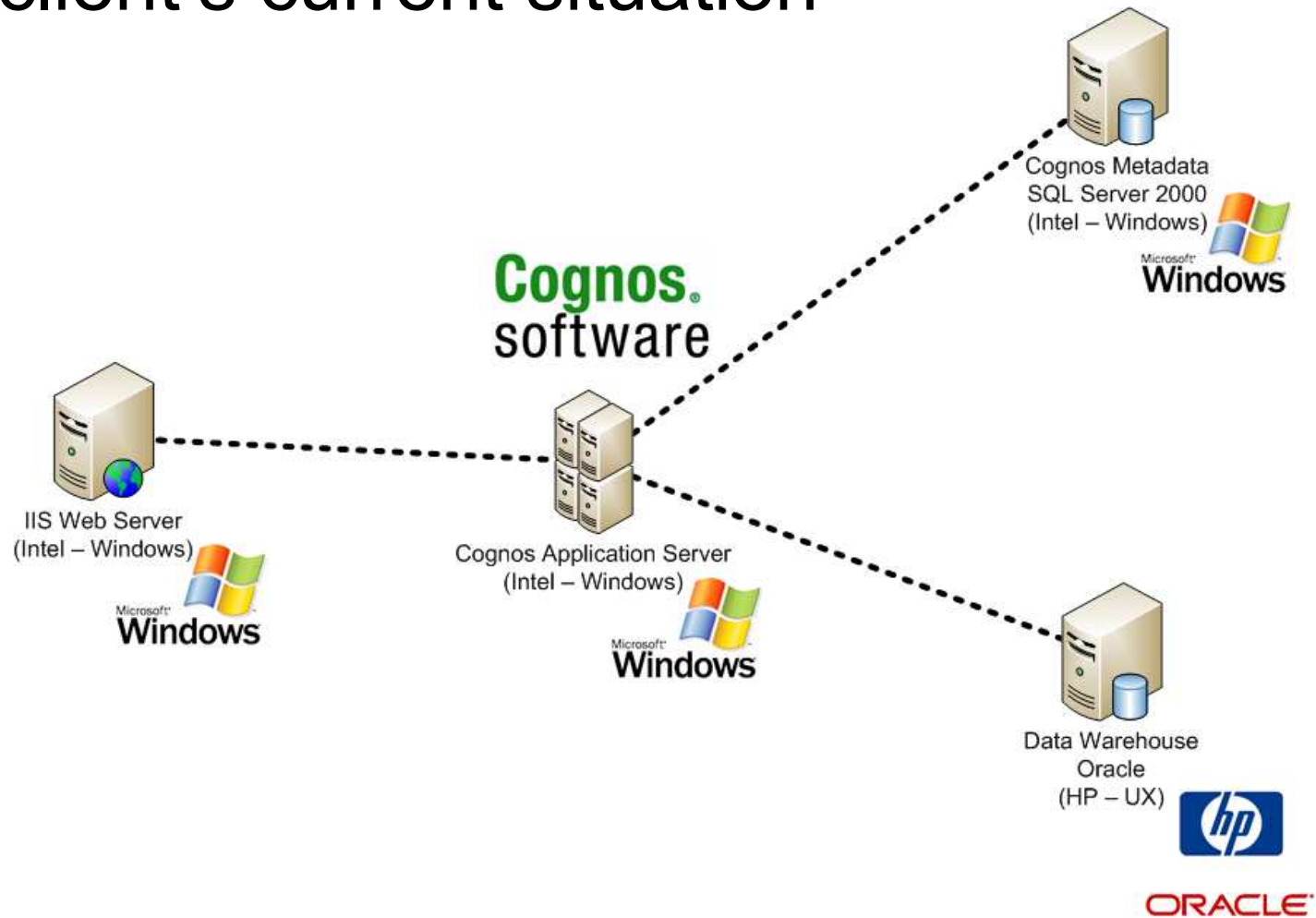
- Does this *really* work?
- Can we *offer* this to our customers?
- Can we *easily* migrate an existing solution?



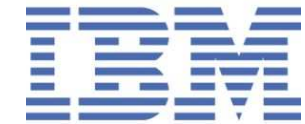
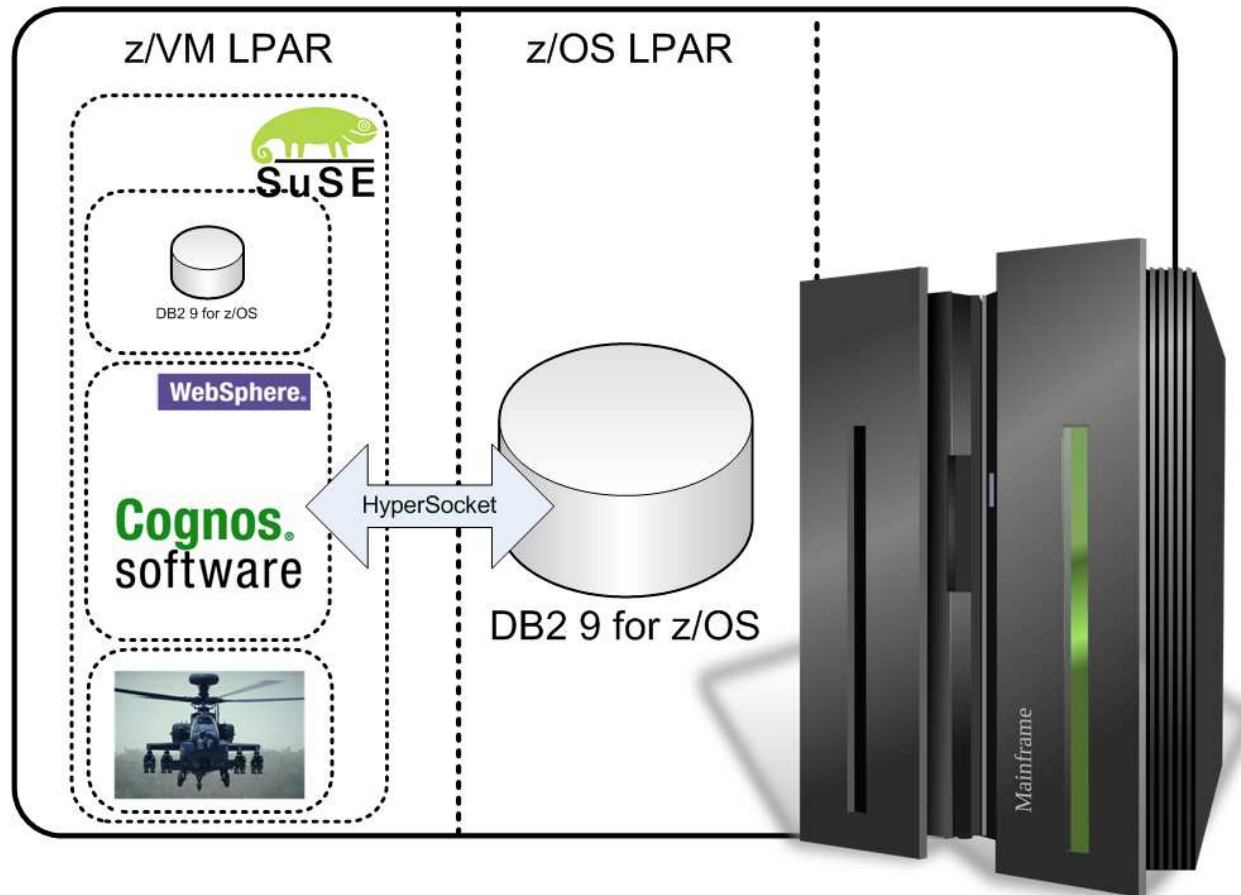
- Let's test it!
- Learn from the experience and develop *best practices*.



Our client's current situation



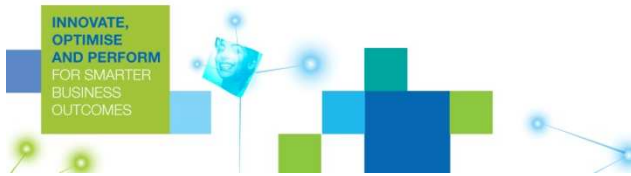
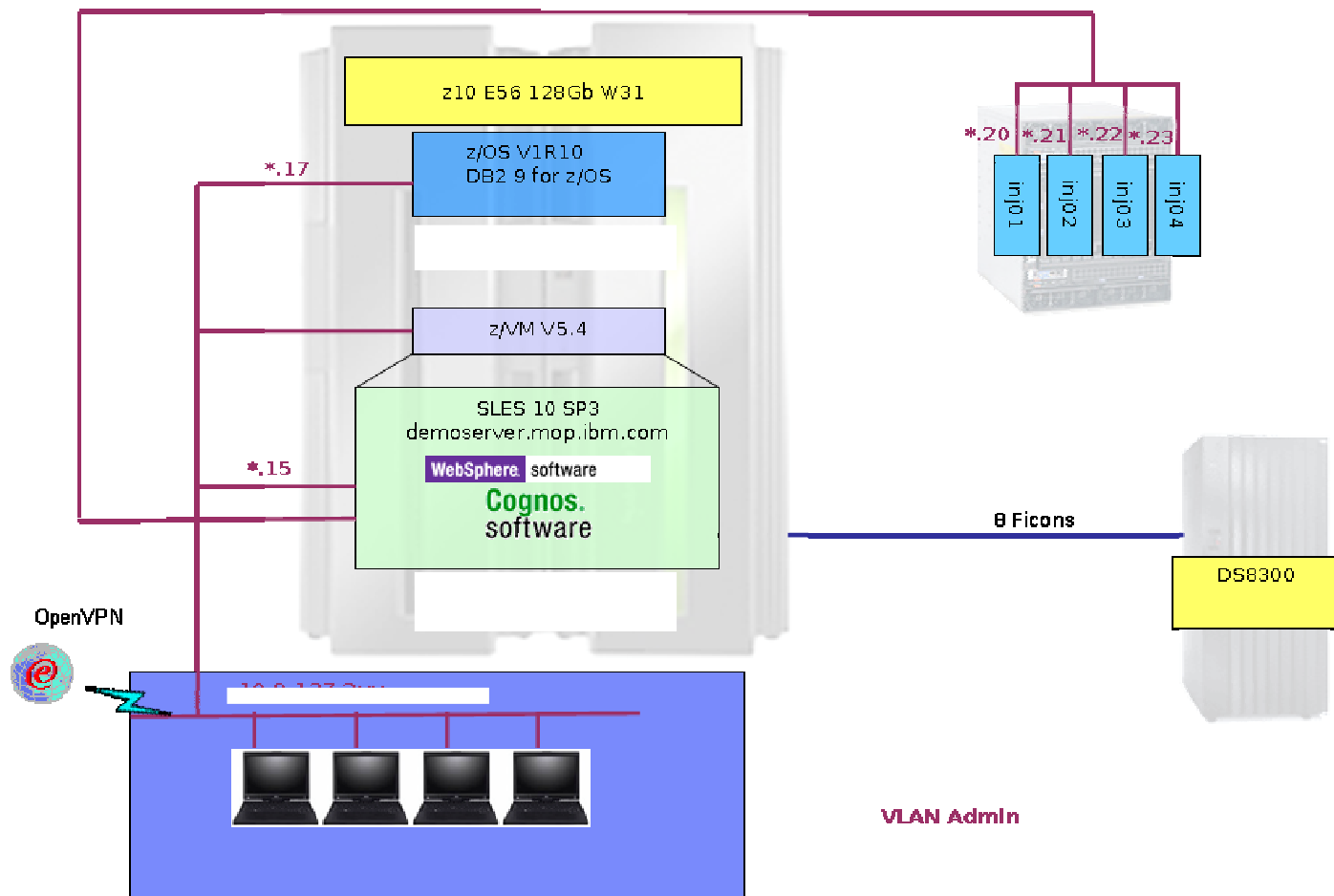
Migrated situation



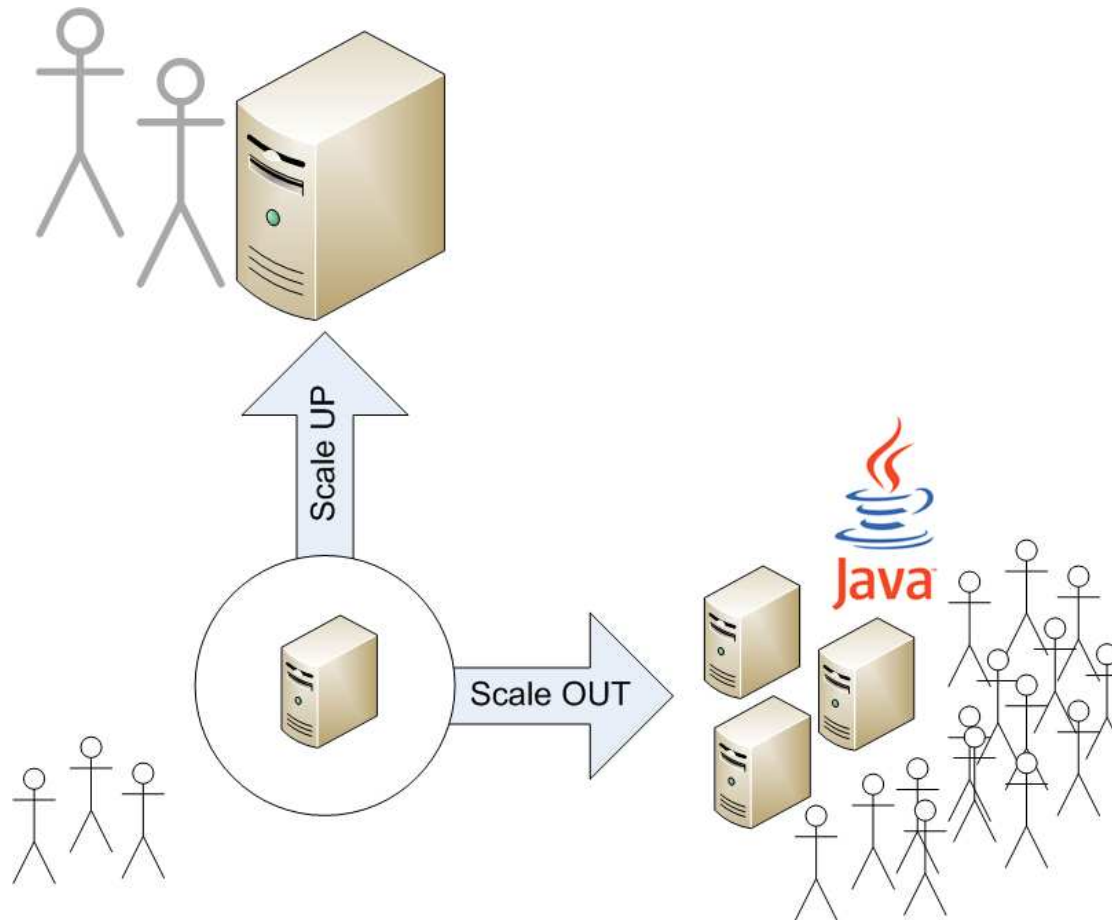
Z10 E56 128Gb



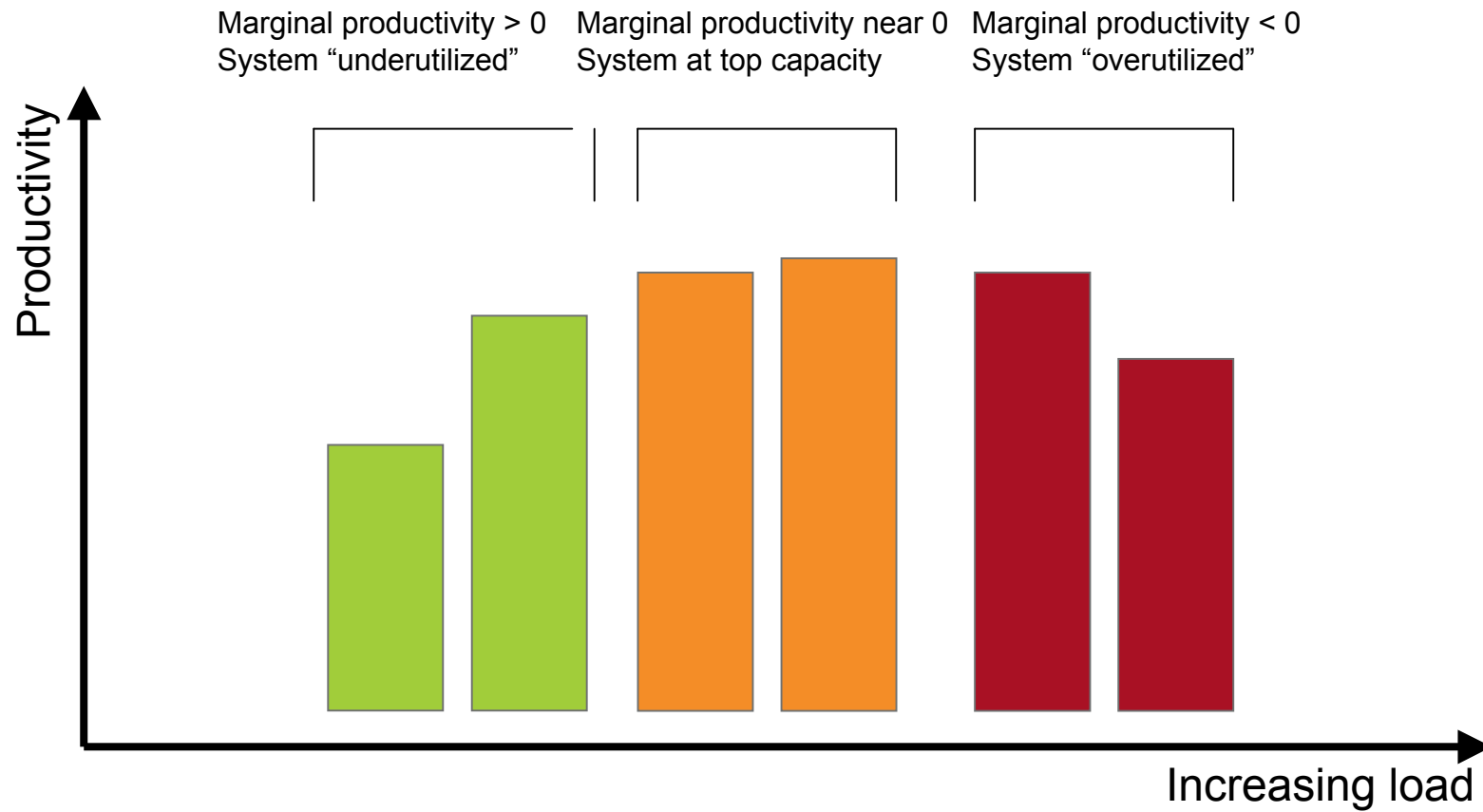
The PoC z technical architecture



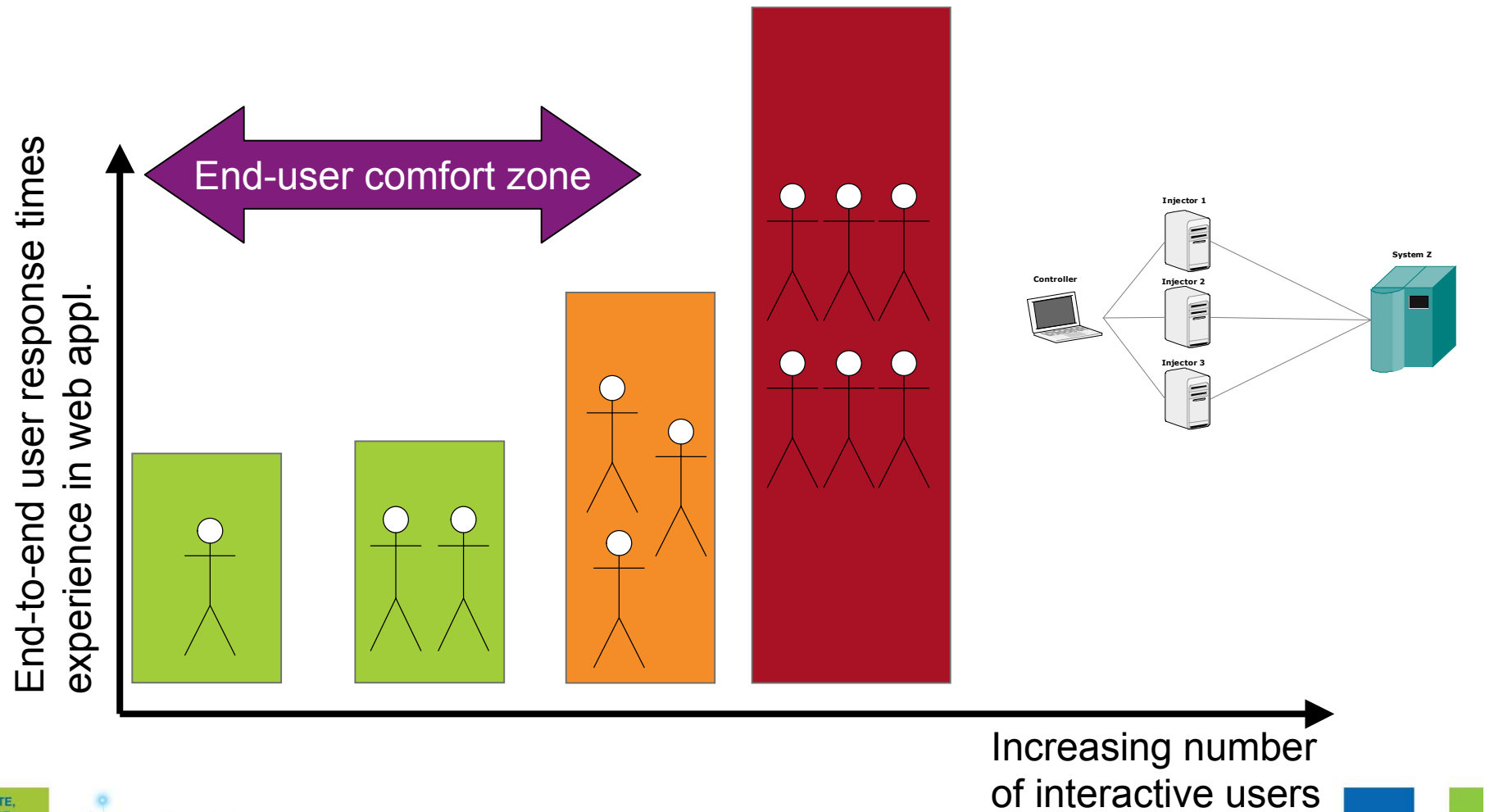
Scale UP vs. Scale OUT



Test 1: Determine top capacity



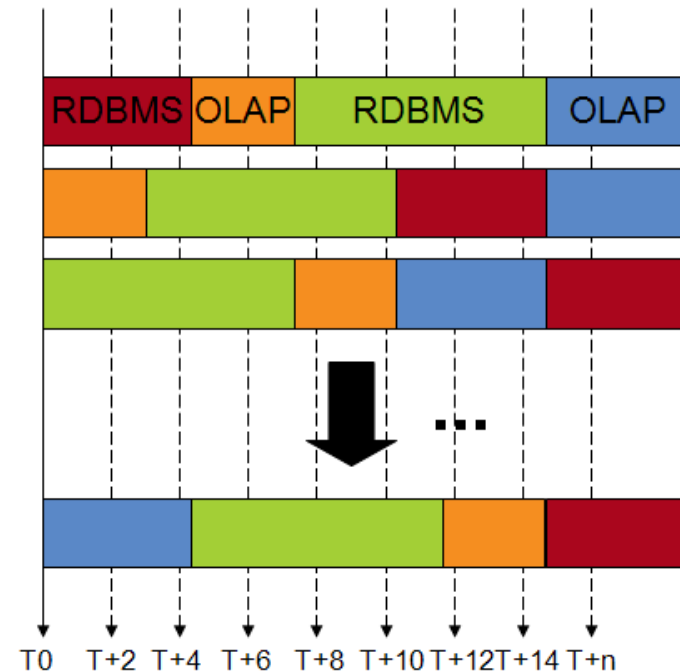
Test 2: Determine end-user comfort zone



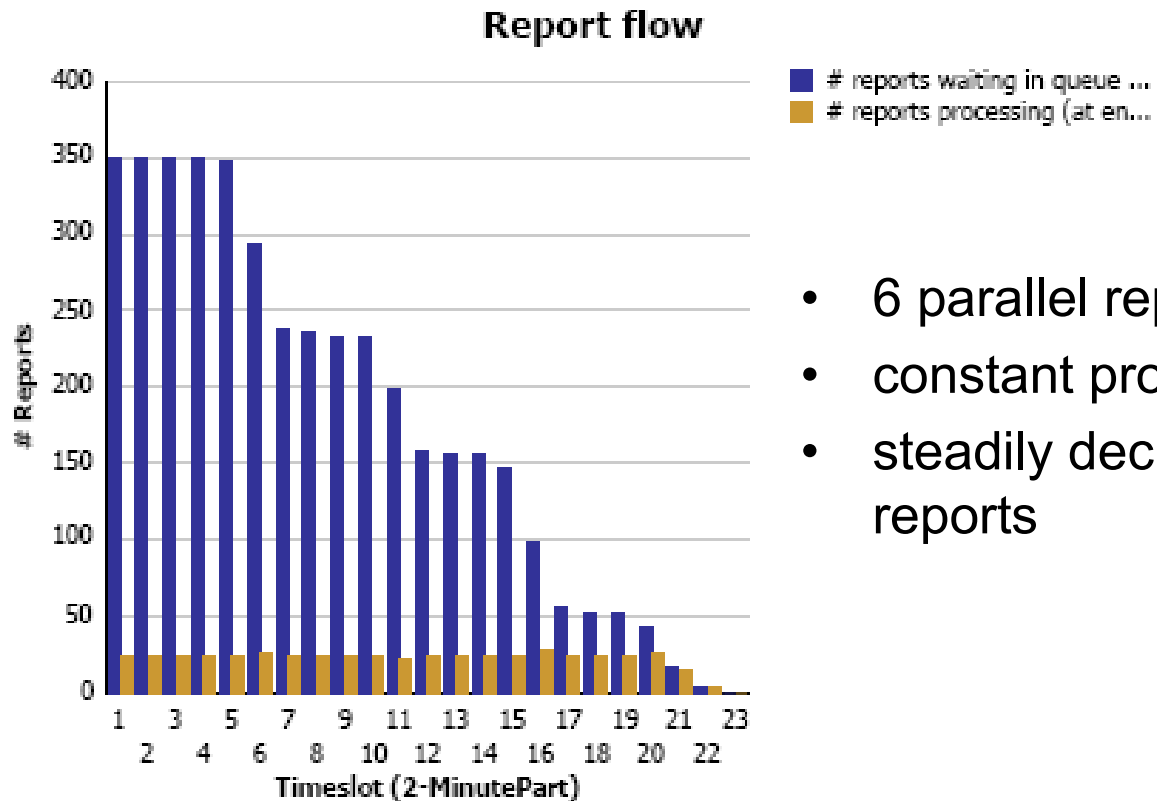
Top capacity test

- Batches of mixed workload of reports:
 - heavy / smaller calculations
 - large / smaller data volume
- Random order
- Growing number of parallel batches:

1, 10, 21, **51**, 100



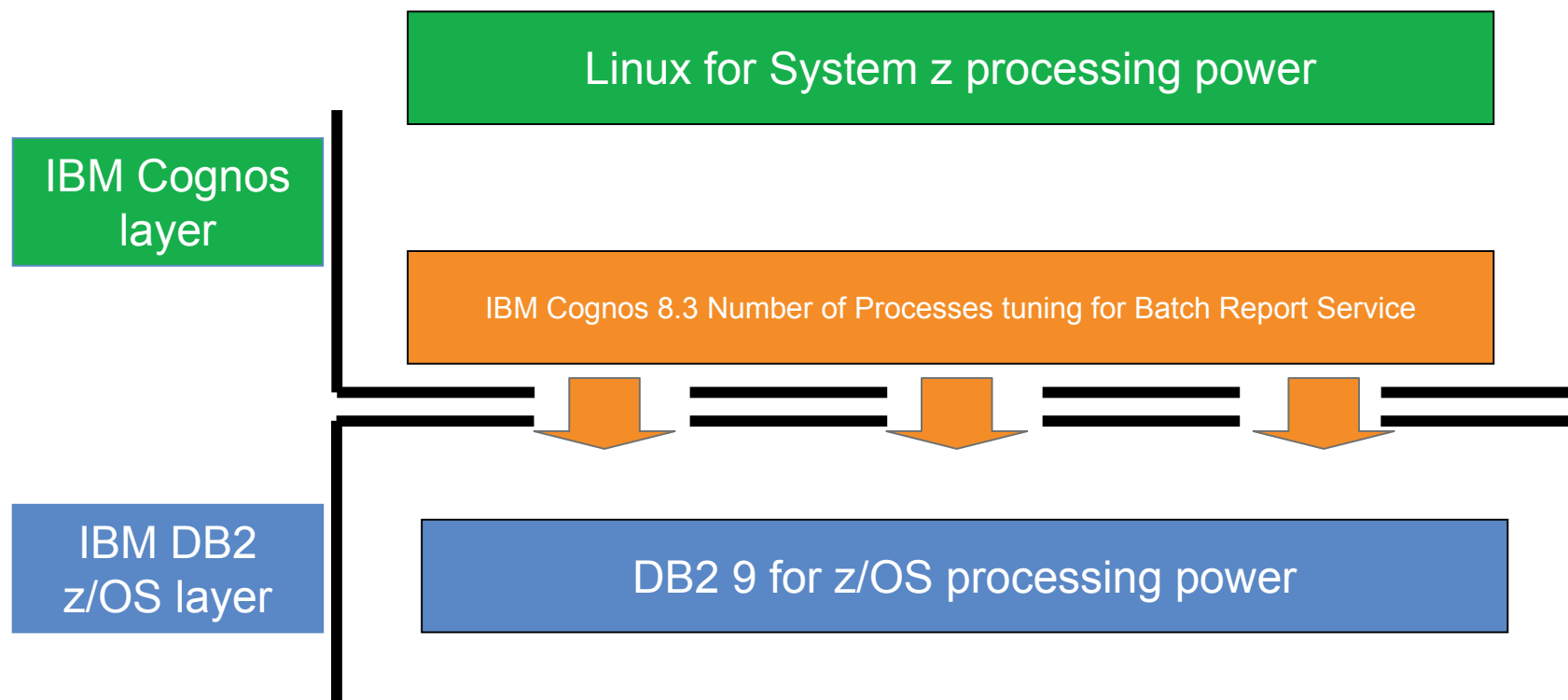
IBM Cognos 8 Report flow for 100 x 1 x 4 test without z/OS WLM Discretionary Service Goal



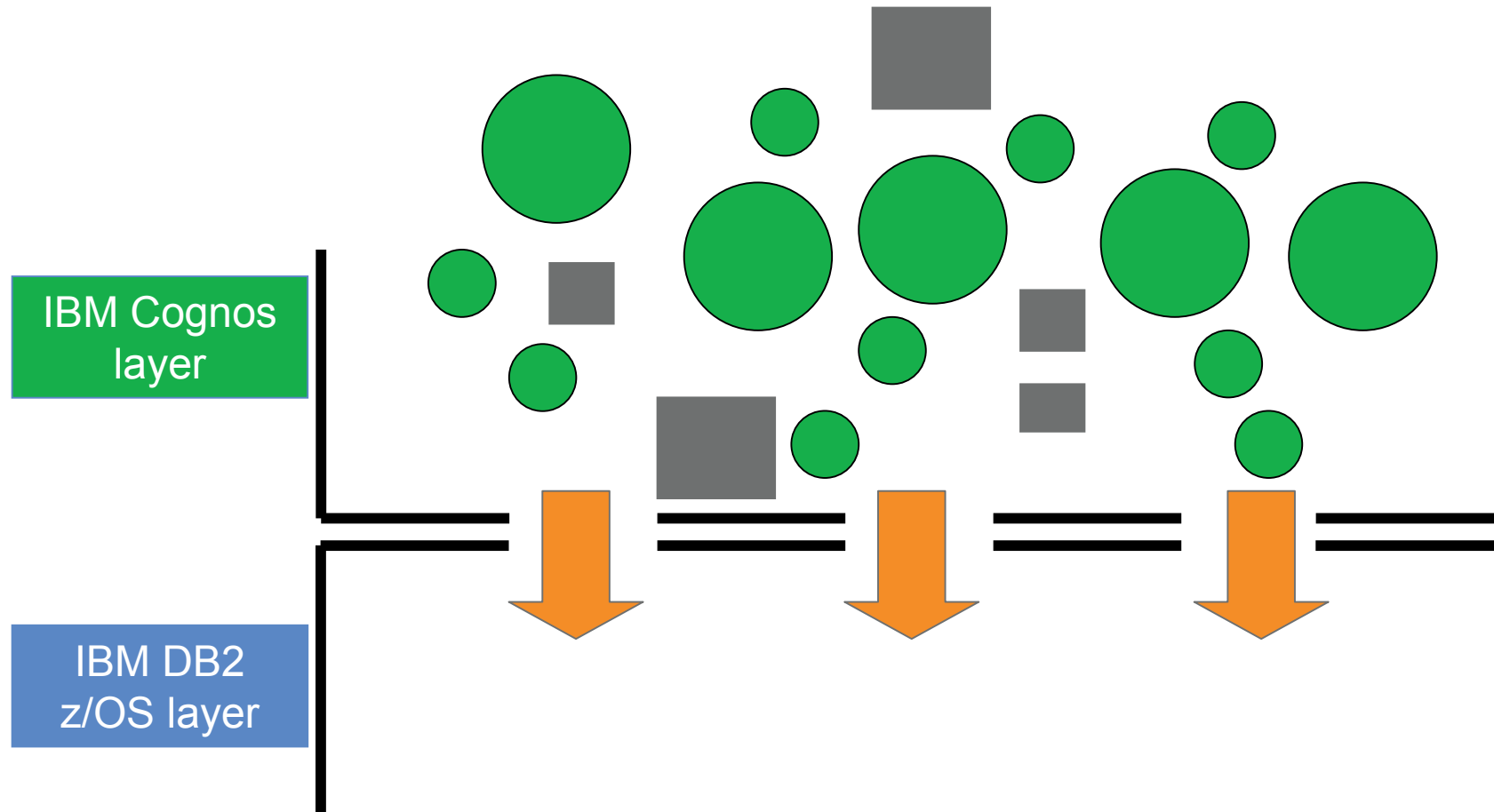
- 6 parallel report processes
- constant processing flow
- steadily decreasing queue of reports



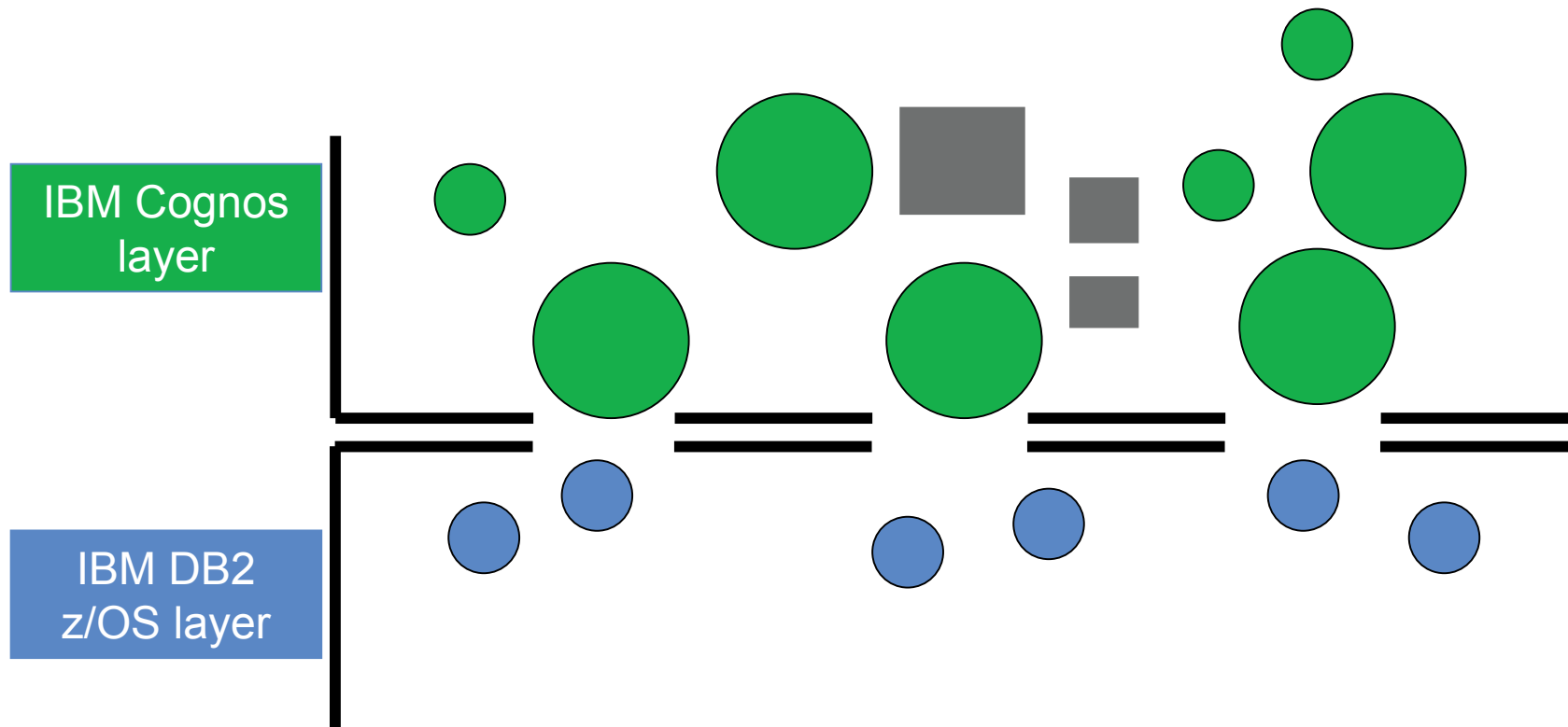
Delicate team play between architectural layers



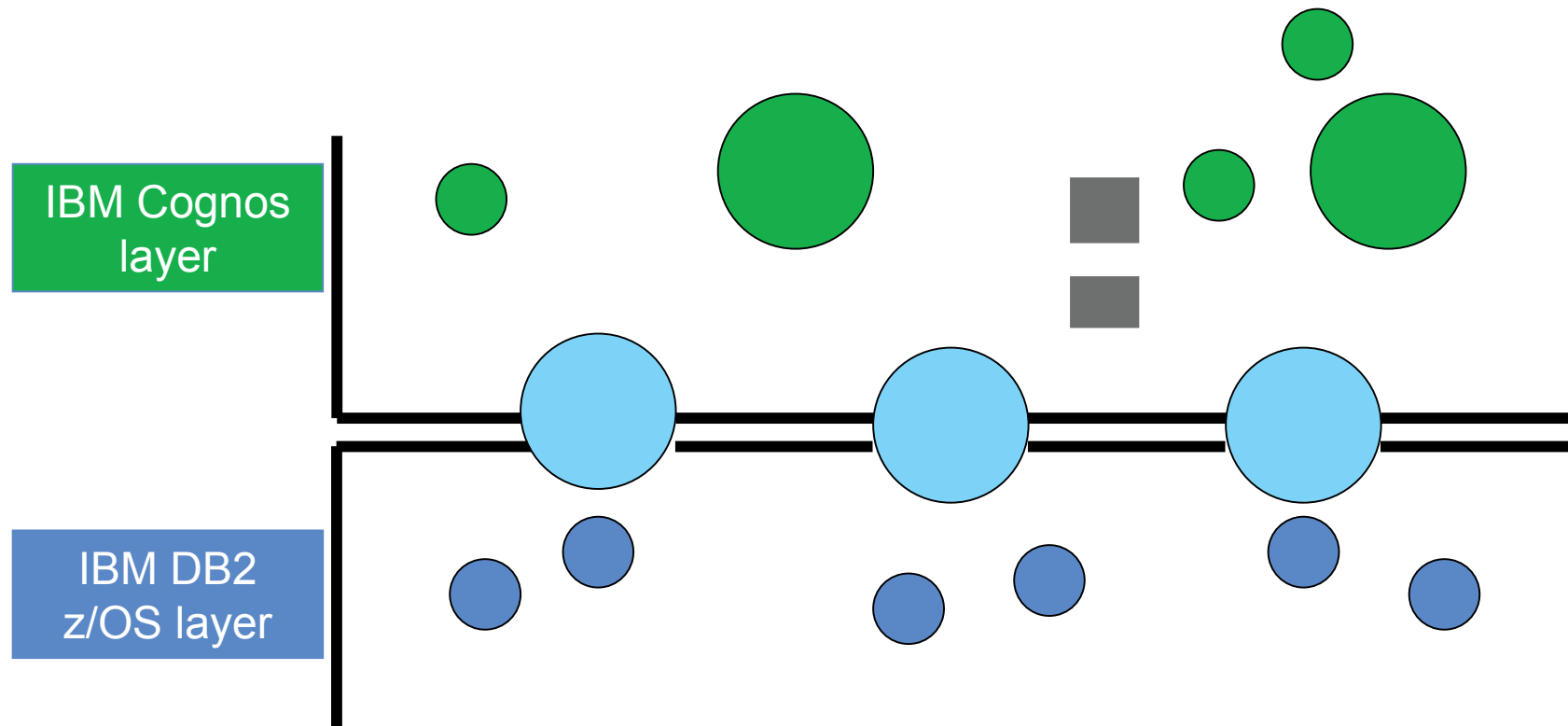
Phase 1: N x 4 reports are submitted



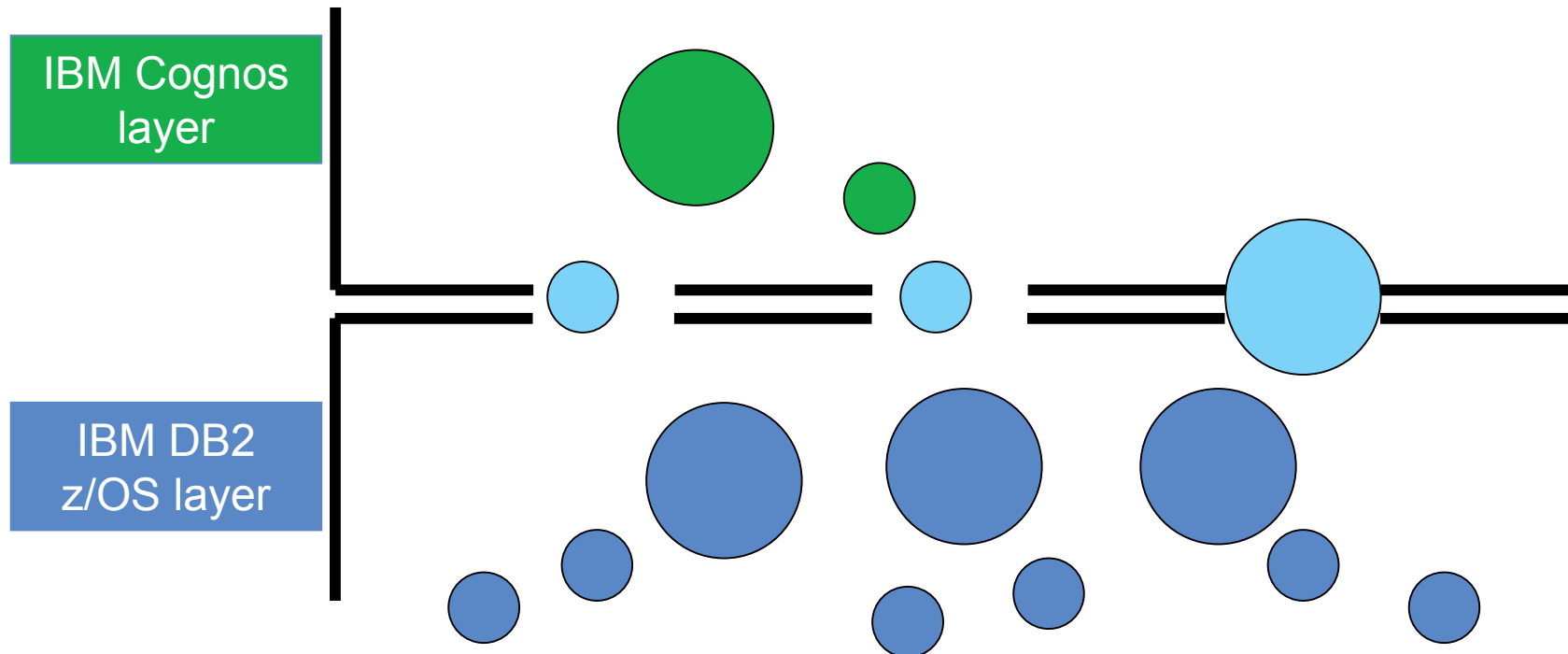
Phase 2A: Simple reports/queries are quickly finished



Phase 2B: Complex reports/queries take longer to process → “wait time” in output

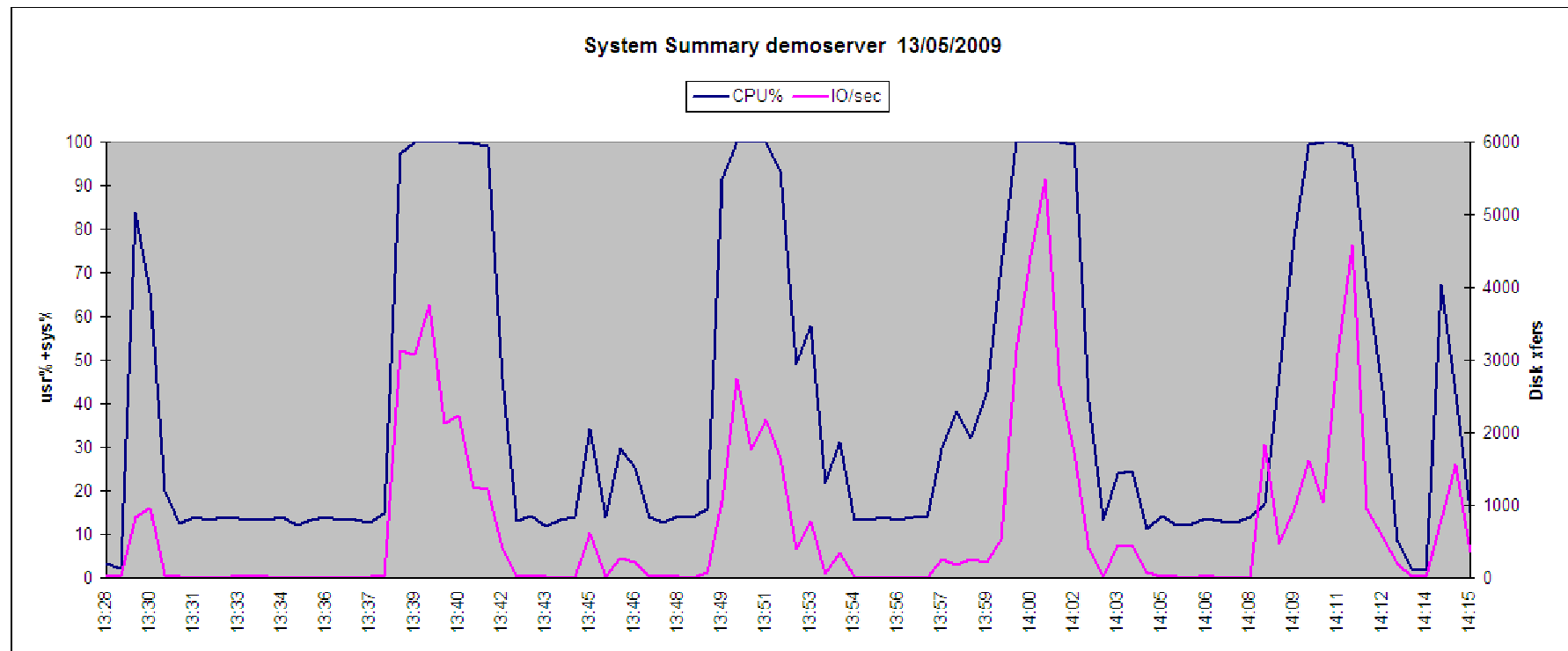


Phase 3: Uniform distribution as easy and complex reports are processed randomly



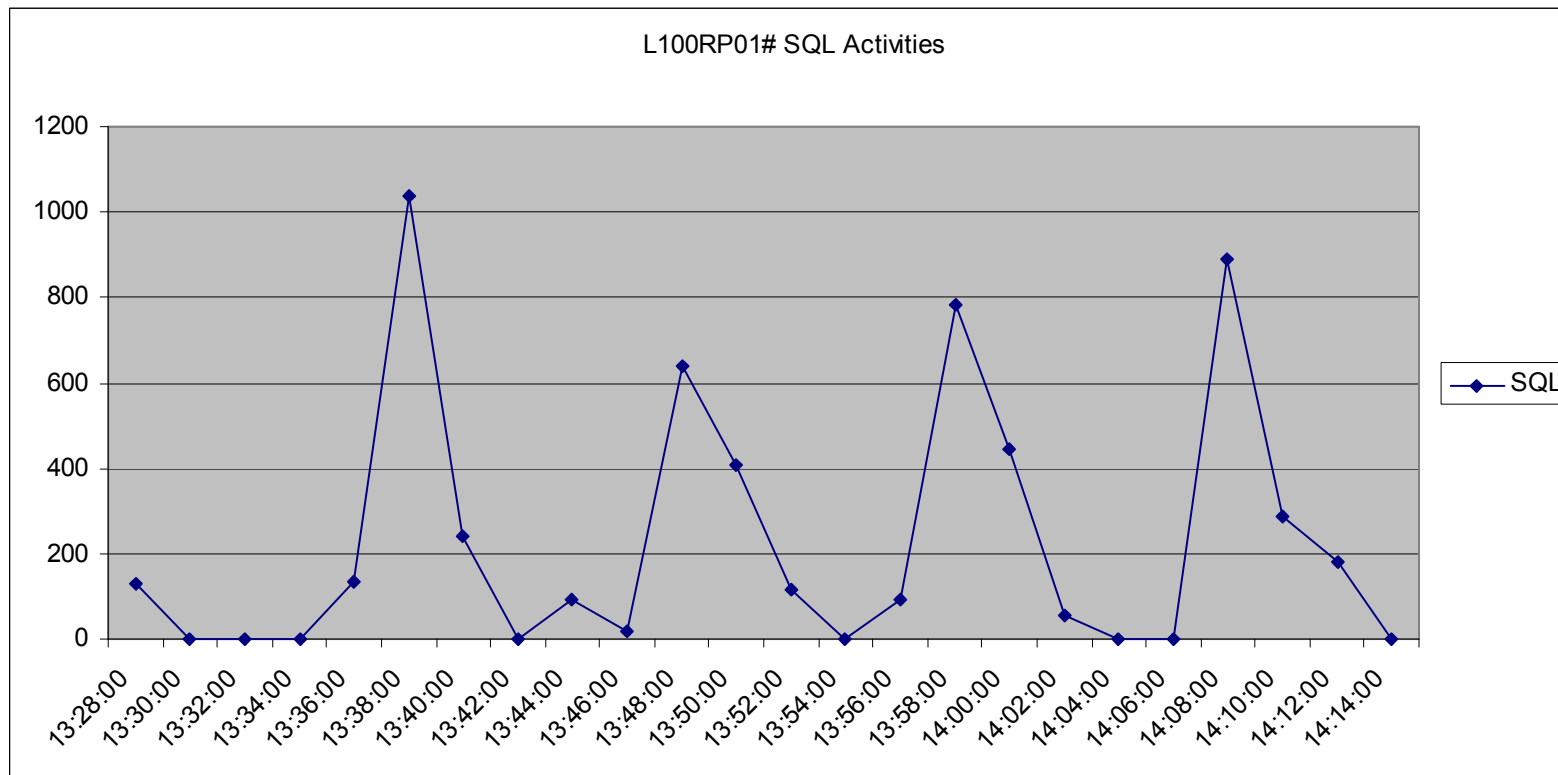
Linux for System z CPU for 100 x 1 x 4 test w/o z/OS WLM Discretionary Service Goal

- CPU & I/O
- Huge PDF file generation



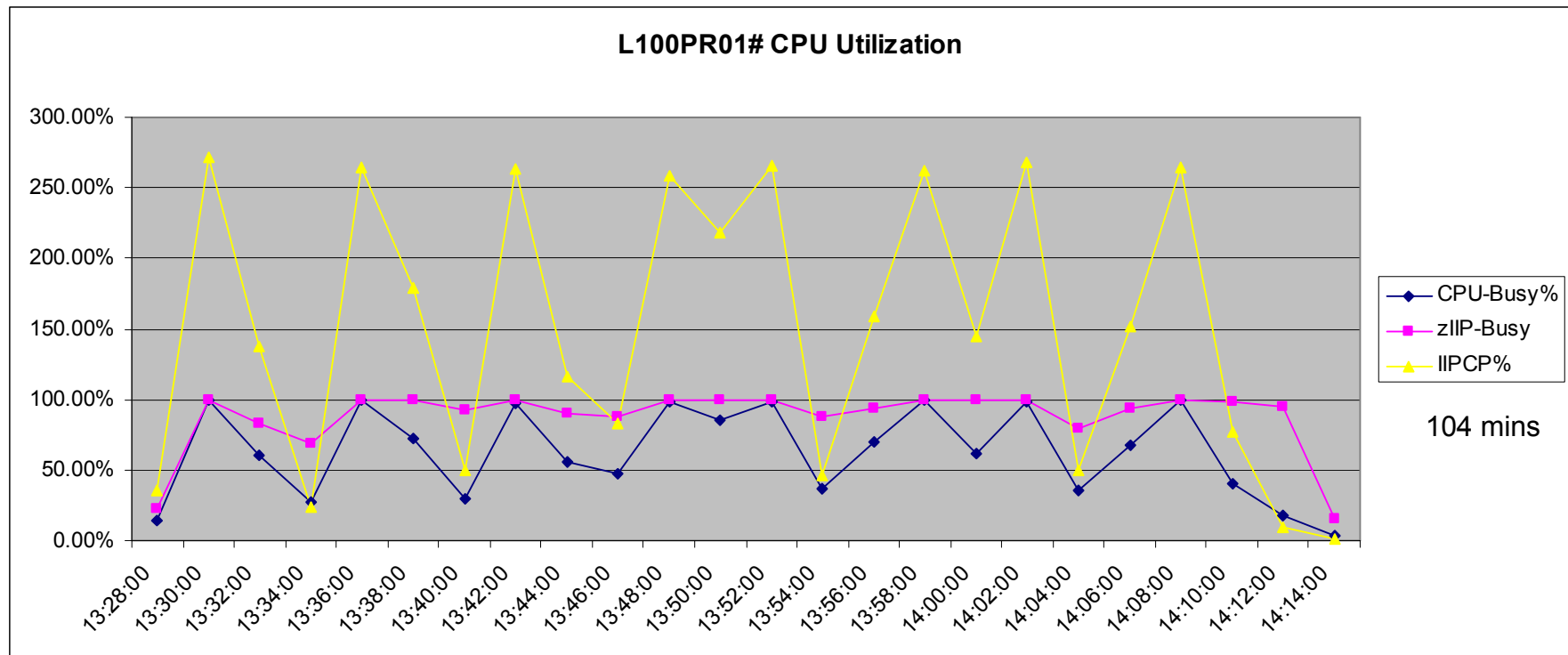
SQL activities for 100 x 1 x 4 test w/o z/OS WLM Discretionary Service Goal

- Corresponding SQL requests DB2 on z/OS.



DB2 9 for z/OS CPU without discretionary service goal

46 mins



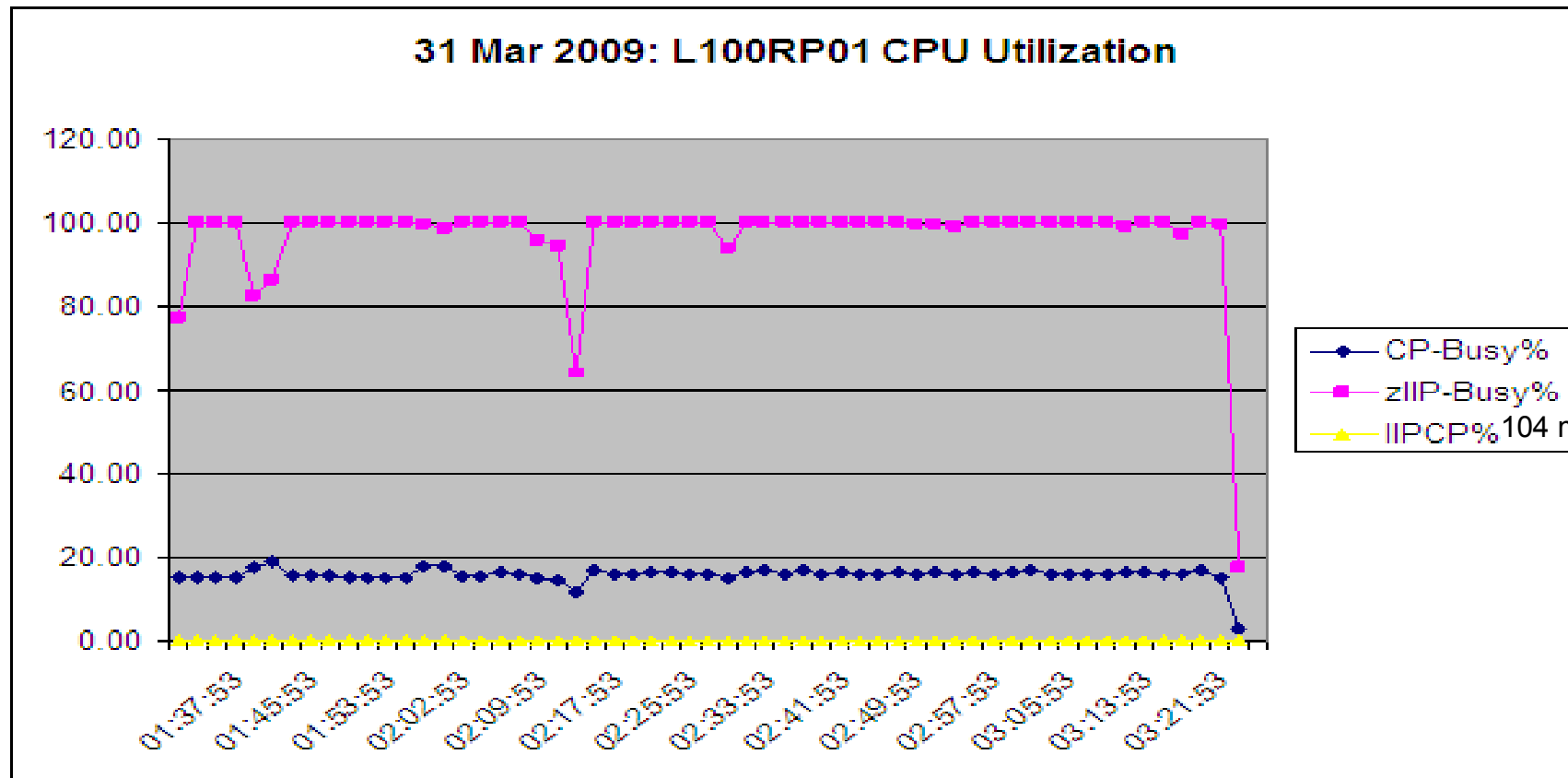
104 mins

- IIPCP (yellow) line
→ first peak approx. 250% equates to additional 2.5 zIIP capacity



DB2 9 for z/OS CPU with discretionary service goal

46 mins



CP-Busy%
zIIP-Busy%
IIPCP% 104 mins

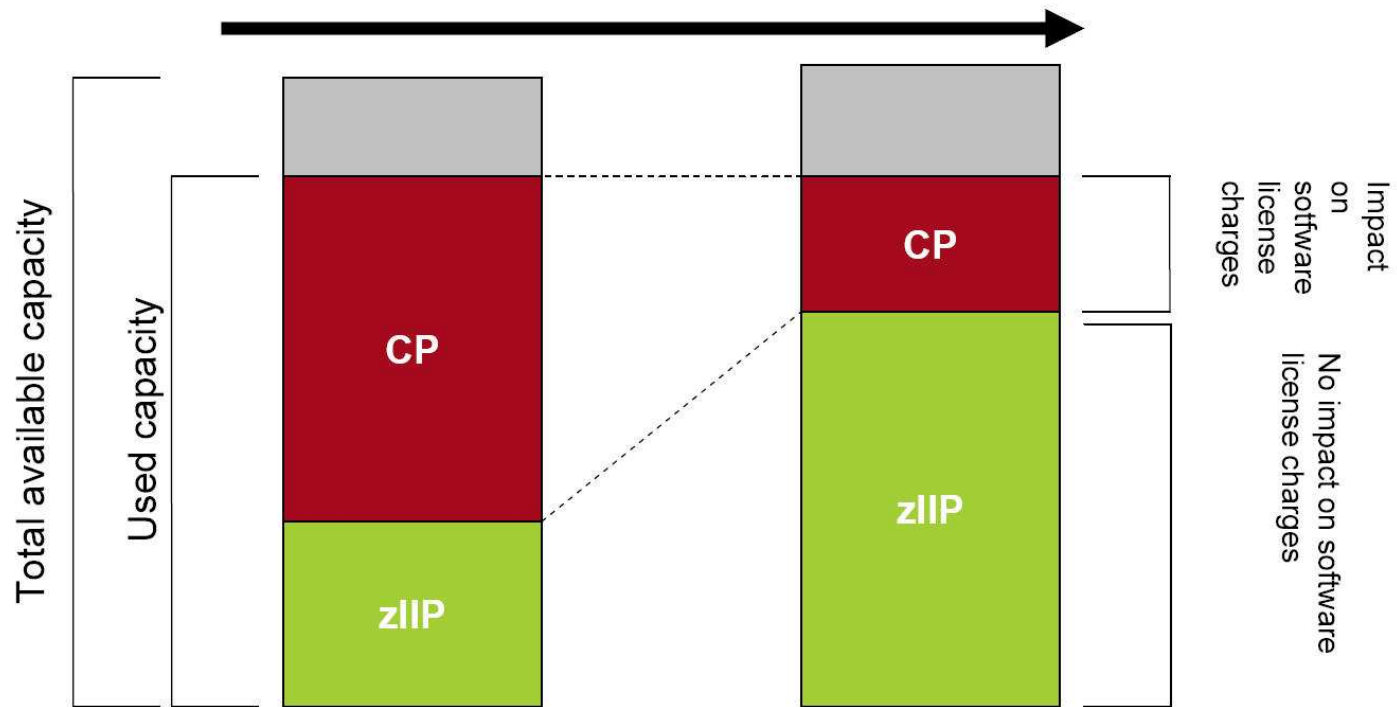


TCO

Impact on TCO

2009

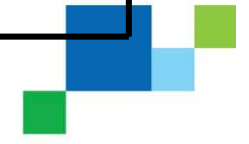
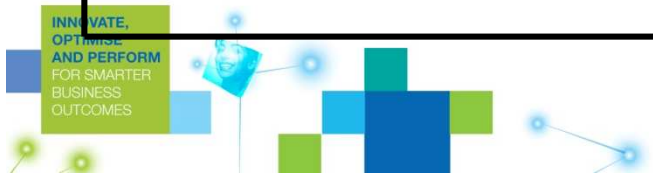
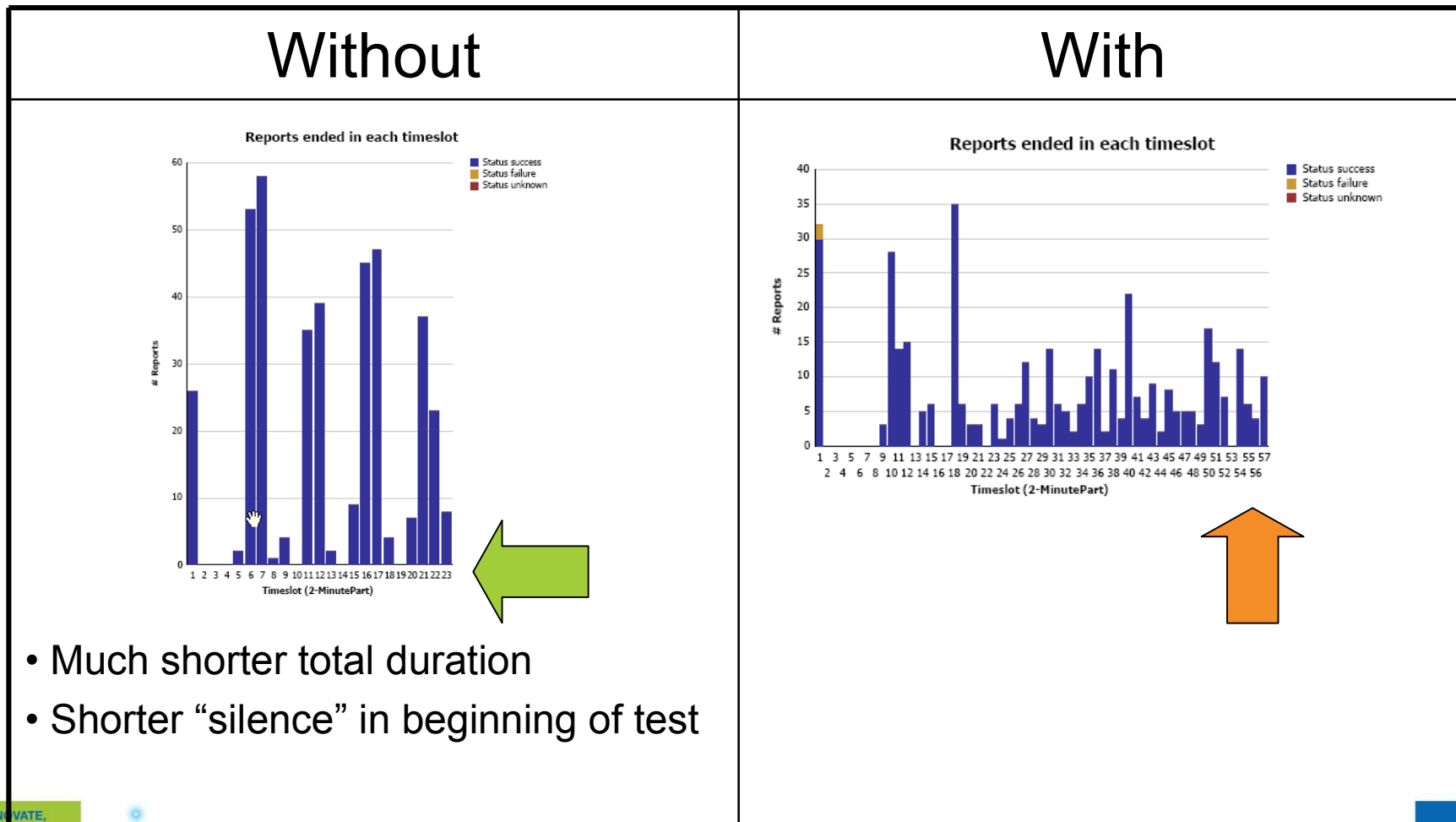
Lower TCO



Remark: Additional zIIP processors increase the overall degree of parallelism

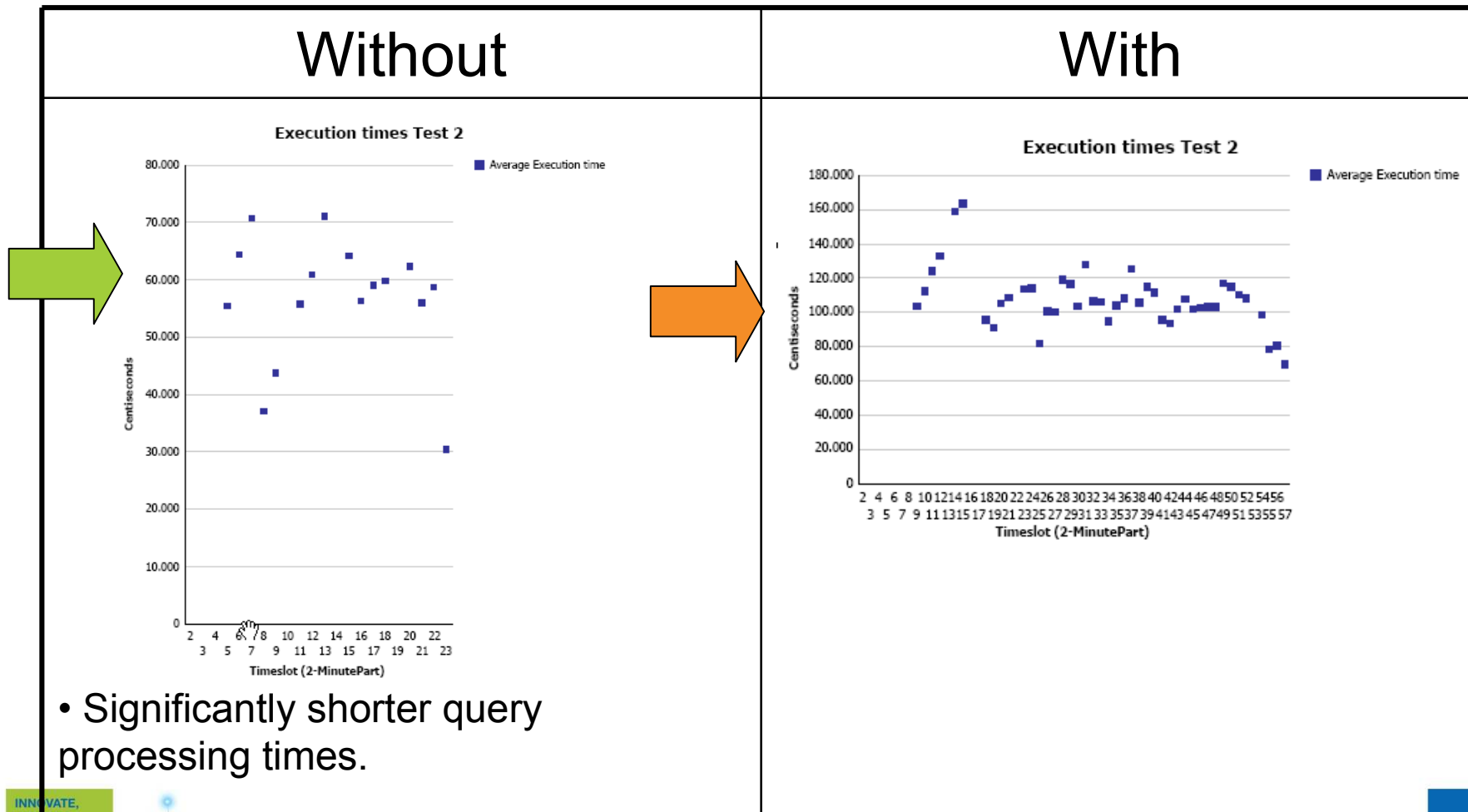


Comparison of results with and without z/OS WLM Discretionary Service Goal

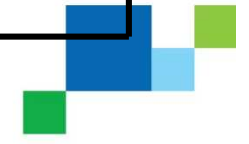
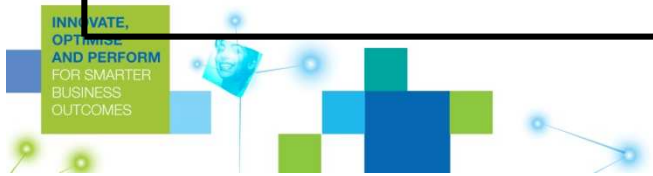


Comparison of query execution time with and without z/OS WLM Discretionary Service

Goal

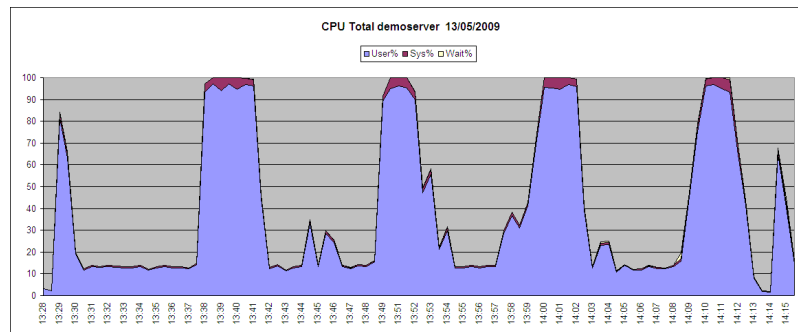


- Significantly shorter query processing times.



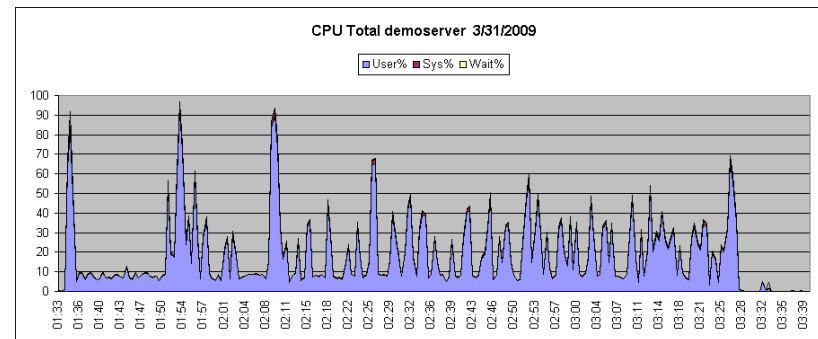
Comparison of Linux for System z CPU with and without z/OS WLM Discretionary Service Goal

Without



- Higher processing power of DB2 9 for z/OS generates more intensive peak load on Linux for System z.
- If the OLAP processing – which is entirely handled on the Linux for System z – coincides with one of these peaks, then the OLAP processing time will go up.

With

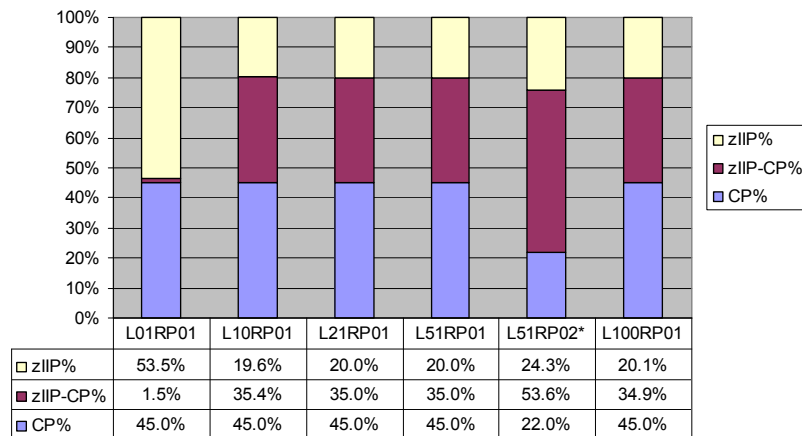


- Lower processing power in DB2 9 for z/OS leads to longer elapse time in query resolution.
- It translate in a more uniform load distribution on Linux for System z, and no impact on OLAP processing.

CPU distribution over zIIP / IIPCP / CP

Without

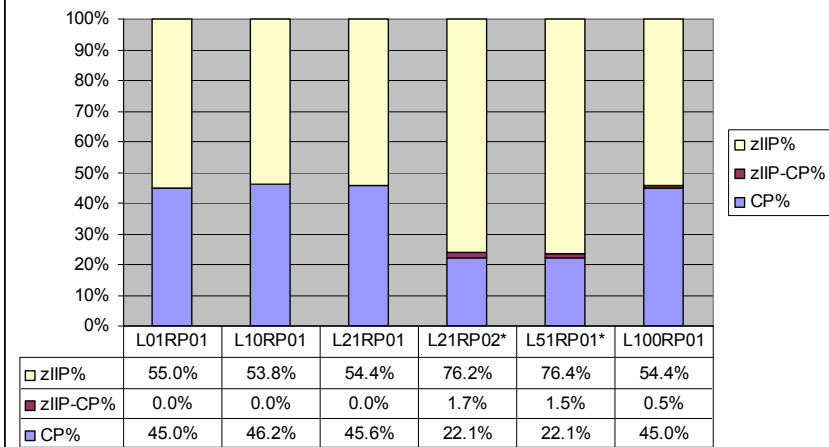
Performance Test Phase 2 zIIP eligibility in %



- zIIP-CP processing takes up a substantially larger proportion.

With

Performance Test Phase 1 zIIP eligibility in %



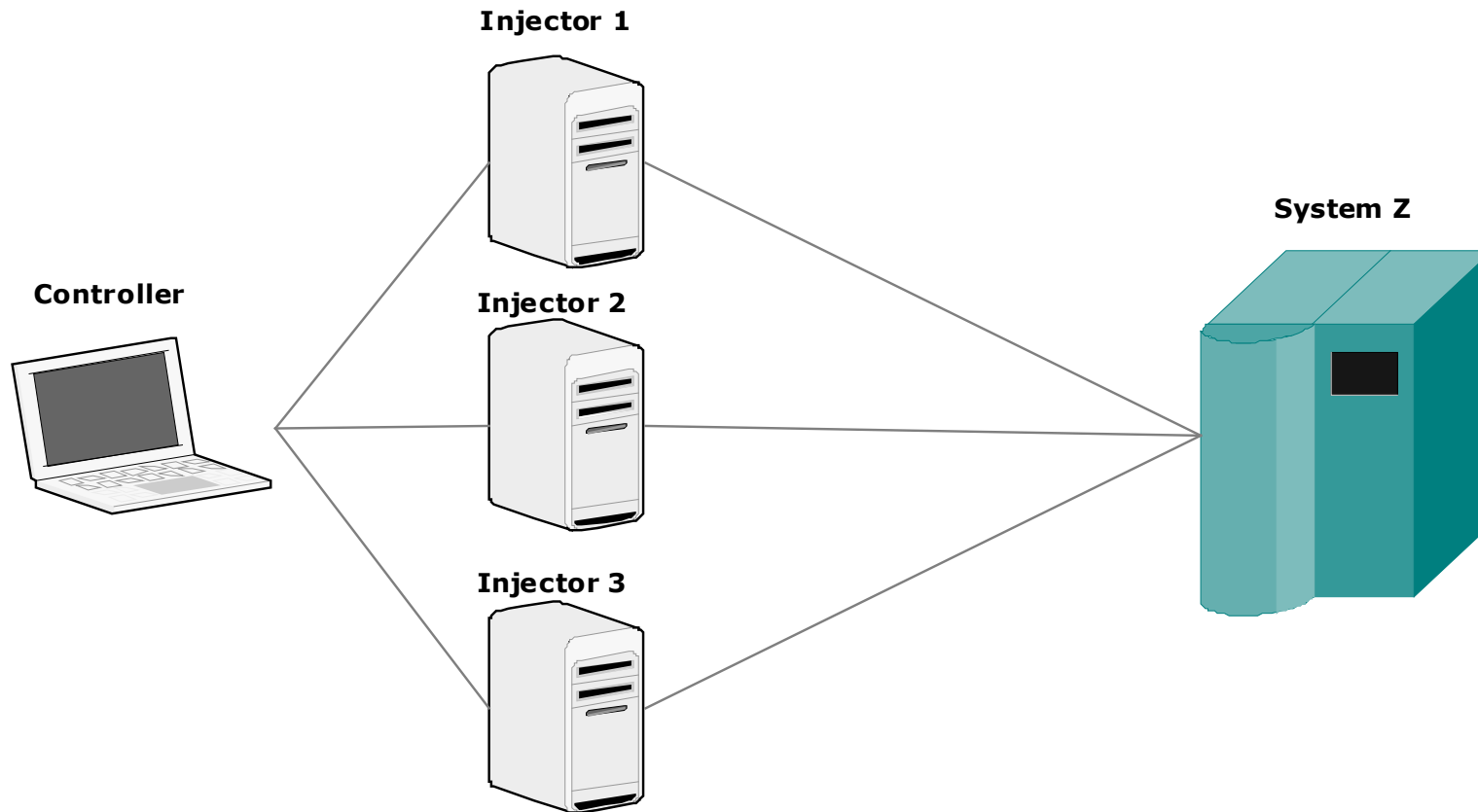
- zIIPCP processing only for none discretionary period

Conclusions on performance tests

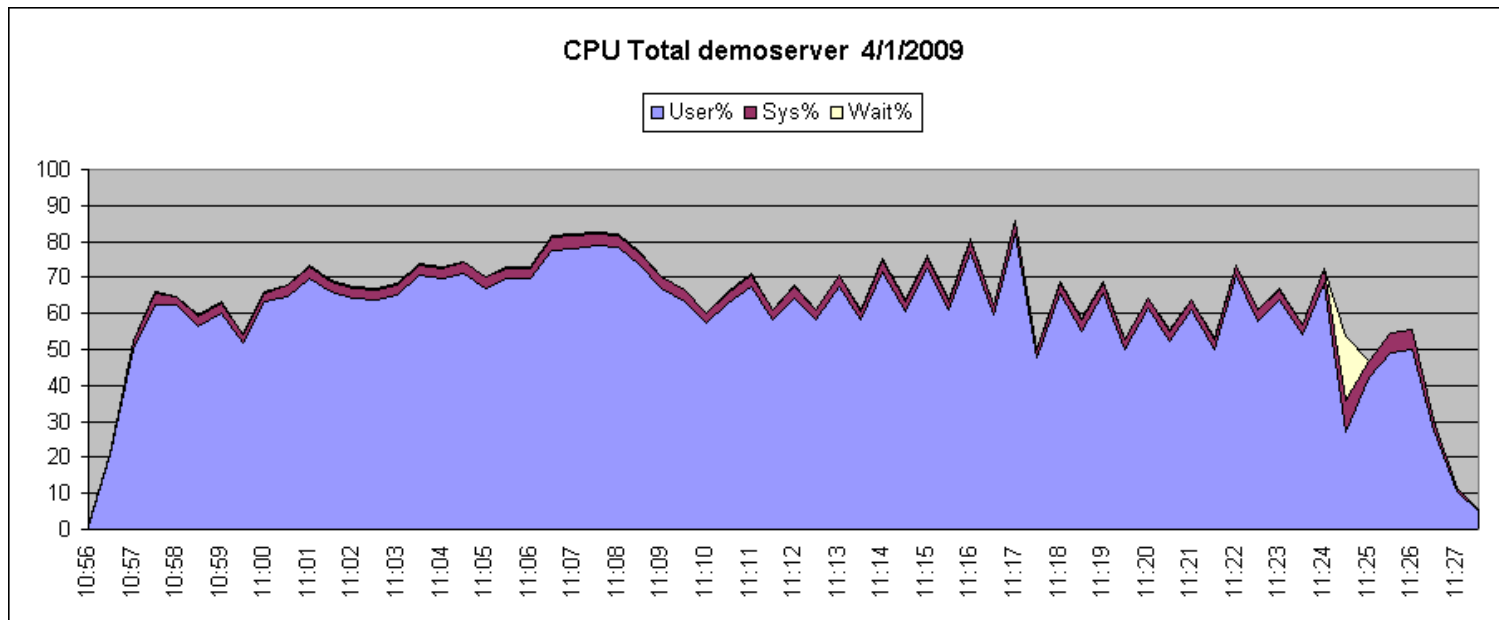
- Stable and predictable platform
- System behavior is driven strongly by the report types.
- A good architecture is “TeamPlay”.
- System z can significantly reduce TOC when scaling up or out
 - +/- minutes for 100 report batches (ca. 30.000 x 100 pages of PDF)
 - A SINGLE report batch on the Numius customer system took approximately 45 minutes of processing time!



Scalability Test



Scaleability Test

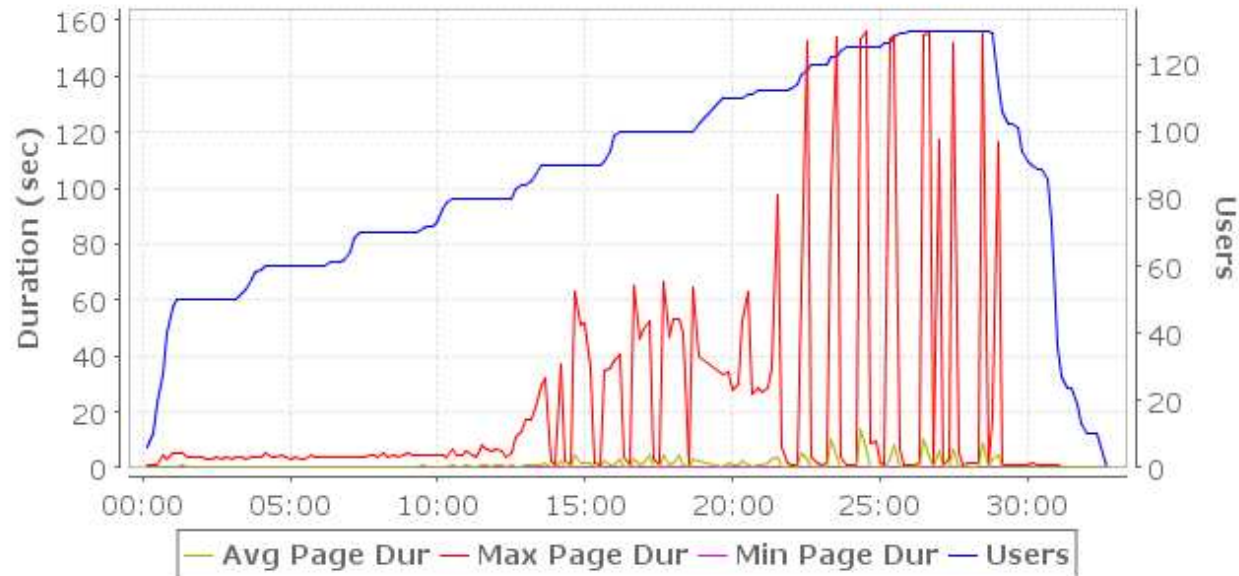


- Linux for System z is charged much more regularly
- interactive end-user behavior must be processed as well



Scalability Test

Page Duration



- Successfully for the full 130 virtual concurrent users that we simulated
- Multiply this with a factor 10 – 50 for “real named users”
- On the client’s system, this test could only be run for 8-12 users...



Conclusions from end-user perspective

- Port of application...
 - without loss of functionality
 - without redesign of the data model
 - without redevelopment
- Practical results
 - unuseable reports become relevant again
 - our client can serve many more users than before
 - Cognos on Linux for System Z can easily be
 - scaled up (heavy reports)
 - scaled out (many users)
- PoC in just 10 days!

