



Power8 Migration

Hugo Jaspers – Common Nederland – September 25, 2017

Content



- How we got to Power7 and EMC VMAX
 - The design and creation of our own benchmark test
 - Why we wanted to discontinue EMC VMAX
 - Why we wanted Scale Out servers and VIOS
 - Testing at IBM Montpellier (FR)
 - Testing on premise
 - Proof of the pudding with our non-production environments (in 2016)
 - Actual move of our production partitions (Q1 2017)
 - Actual results and Datacenter switch test (Easter 2017)
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Power 7 and EMC VMAX storage (1)



- Power 7 model 770 installed July 2011
 - Storage - IBM Storwize DS5300
 - Storage - direct attached to fiber cards
 - Performance issues
 - We did a lot of work to get these fixed, but not with the results we expected.
-

Power 7 and EMC VMAX storage (2)



- March 2013 fire in one of our datacenters
 - Fire extinguisher 100+ db: half of our physical disc on DS5300 crashed!

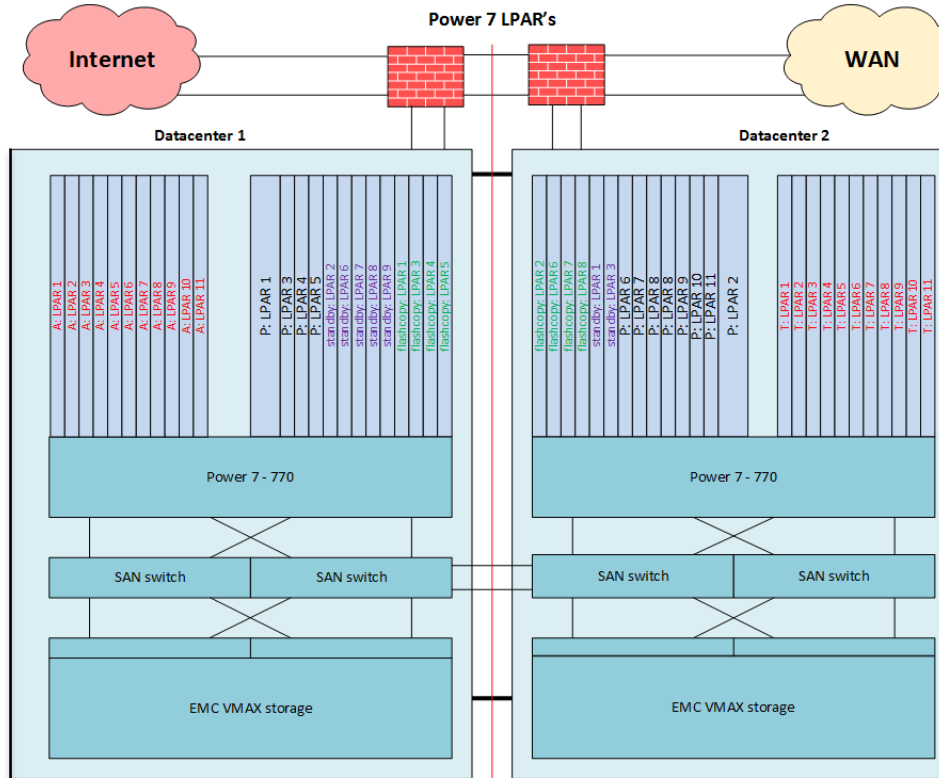
 - IBM wanted more than €1.000 per disc
 - It felt as if we were forced to buy EMC VMAX
-

Power 7 and EMC VMAX storage (3)



- EMC VMAX installed April 2013
 - Performance issues
 - We did a lot of work to get these fixed, but not with the results we expected
 - We gained:
 - SRDF/s - Symmetric Remote Data Facility / synchronous (comparable with IBM MetroMirror)
 - Ability to perform a datacenter switch
-

Sligro Food Group past situation



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Our own benchmark test (1)

- We wanted to be sure on what we could expect the next time we upgrade
 - Our main partitions have a very alternating workload
 - Because of that an uncertain performance
 - During daytime a lot of interactive usage
 - So difficult to simulate
 - IO profile 10/90 (r/w, as opposed to a 80/20 average).
 - So we created our own benchmark test
-

Our own benchmark test (2)



- Details on our own benchmark test.
 - We run this test on a system in restricted state, because we don't want anything to influence the results of the benchmark.
 - We run 6 times and discard the first run.
 - We use SQL tables and native RPG IO statements, three record lengths (104 bytes, 1004 bytes, 10004 bytes).
 - Further details on next slide.
-

Our own benchmark test (3)

- Details on our own benchmark test - continued.

Write_O 100k	Write_O_Reuse 100k	Read 100k	Chain 100k
Chain_Random 100k	Read_Update 100k	Chain_Update 100k	Update_1_Record 100k
Read_Delete 100k	Write_Reuse 100k	Write 50k Read 50k	Write 50k Read 100k
Write 50k Read 150k	Write 50k Read 200k	Write 50k Read 250k	

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Why discontinue with EMC VMAX?



- Performance issues (as discussed earlier)
 - Lack of support
 - Only one person with IBM i knowledge in EMEA
 - An attitude that looked like no interest in getting our problems fixed on the side of EMC
 - In the end maintenance was transferred to IBM.
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Goals - Why scale out servers and VIOS?



- Gain performance
 - Cost reductions
 - Gain flexibility
 - Ability to use LPM
 - Physical separation between production and non-production
-

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Testing at IBM Montpellier (FR) (1)

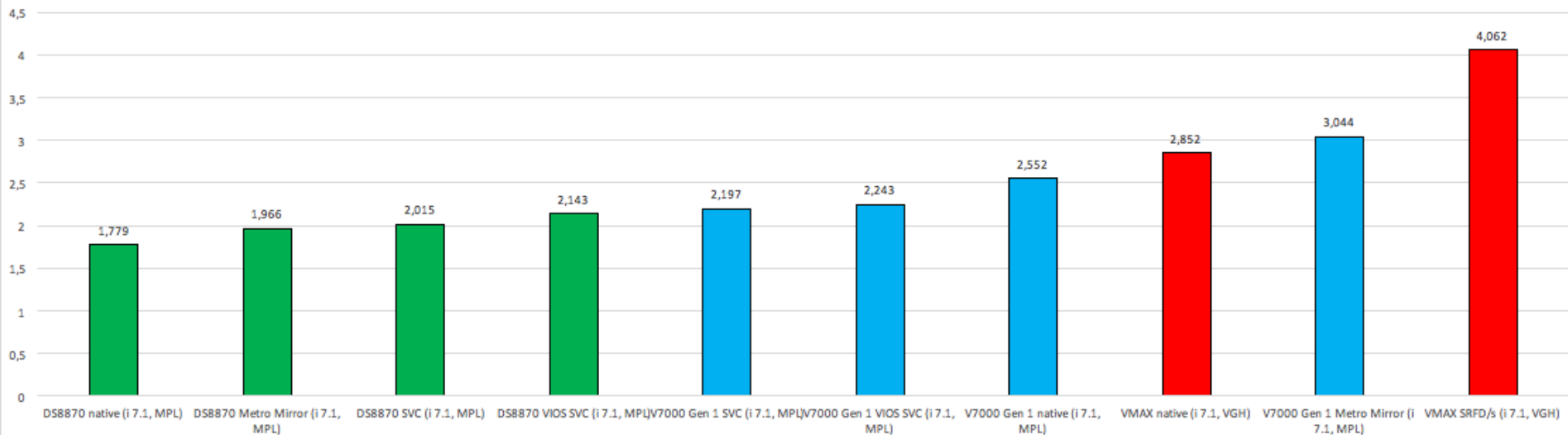


- We went there in late Spring 2014 and used our own benchmark test
 - We tested different configuration combinations
 - DS8870 native
 - DS8870 native with Metro Mirror
 - DS8870 with SVC
 - DS8870 with SVC on VIOS
 - V7000 (gen 1) with SVC
 - V7000 (gen 1) with SVC on VIOS
 - Results of these tests on next slide
-

Testing at IBM Montpellier (FR) (2)



Summary Storage Performance Benchmark Test Sligro Food Group



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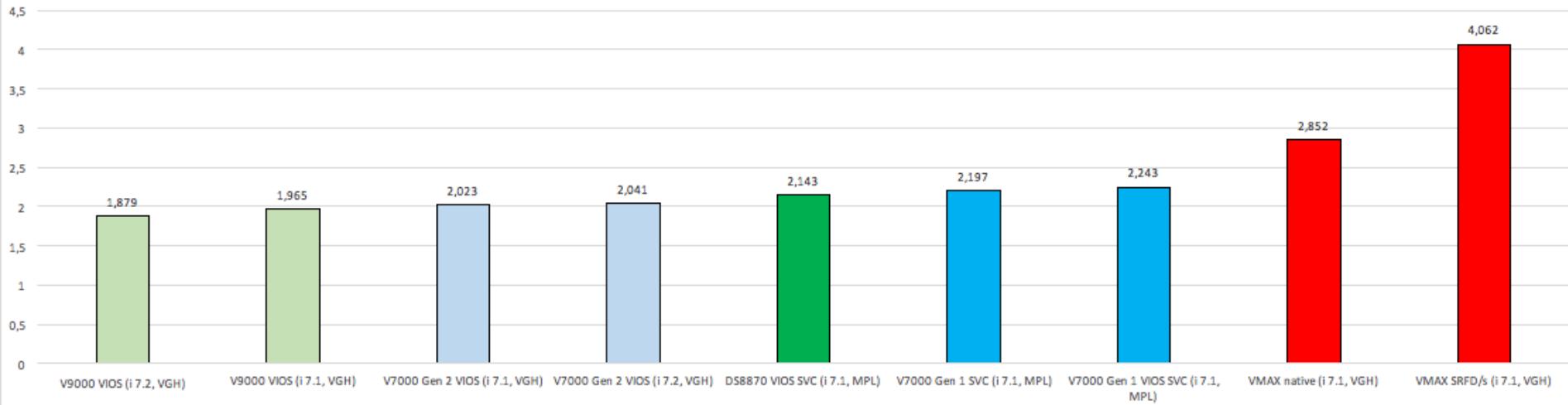
Testing on premise (1)

- Testing took place last quarter 2015
 - We tested different configuration combinations
 - V9000 VIOS IBM i 7.2
 - V9000 VIOS IBM i 7.1
 - V7000 (gen 2) VIOS IBM i 7.2
 - V7000 (gen 2) VIOS IBM i 7.1
 - Results of these tests on next slide
-

Testing on premise (2)



Summary Storage Performance Benchmark Test Sligro Food Group



Testing on premise (4)

- Conclusions after these tests
 - Start upgrading to IBM i 7.2 for all our partitions
 - VIOS for all our partitions
 - V7000 (gen 2) for most of our partitions
 - V9000 (flash) for two most important partitions
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Proof - non-production partitions



- 2 IBM Power System servers S814
 - 2 IBM Storwize V7000 (gen 2) storage subsystems
 - 2 * 2 VIOS partitions
 - 12 IBM i v7.2 partitions for System Integration Test
 - 12 IBM i v7.2 partitions for User Acceptance Test
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Proof - production partitions (1)



- 2 IBM Power System servers S814
 - 2 IBM Power System servers S824
 - 2 IBM Storwize V7000 (gen 2) storage subsystems
 - 2 IBM Storwize V9000 (flash) storage subsystems
 - 4 x 2 VIOS partitions
 - 12 production partitions (IBM i v7.2)

 - Physical separation between production and non-production

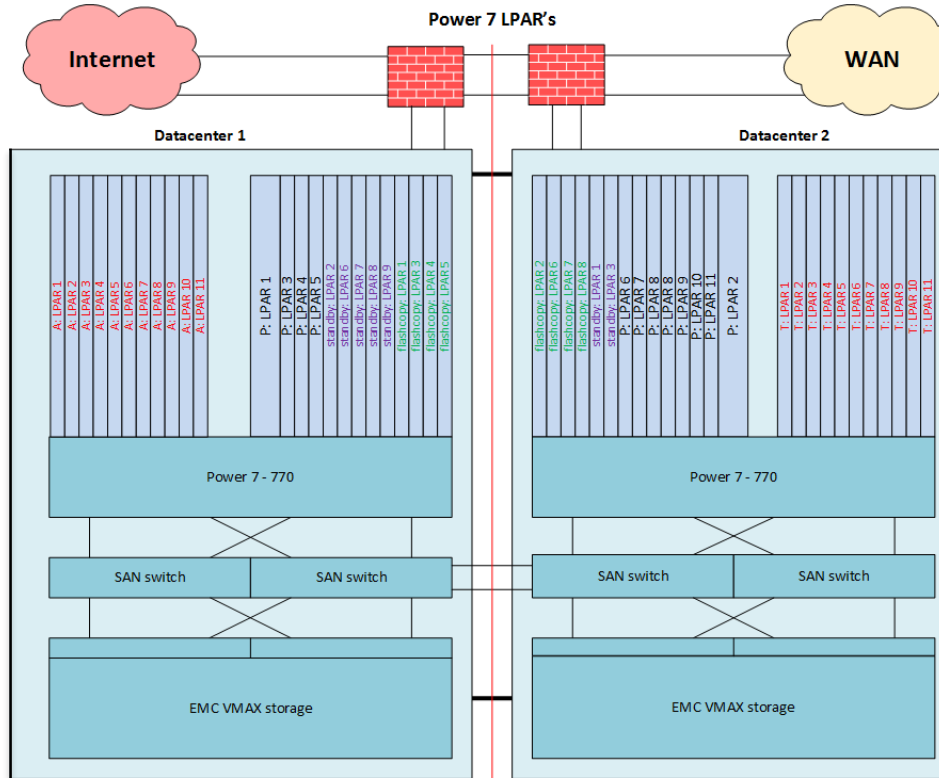
 - Using IBM Flashcopy toolkit - backup times back to acceptable
-

Proof - production partitions (2)

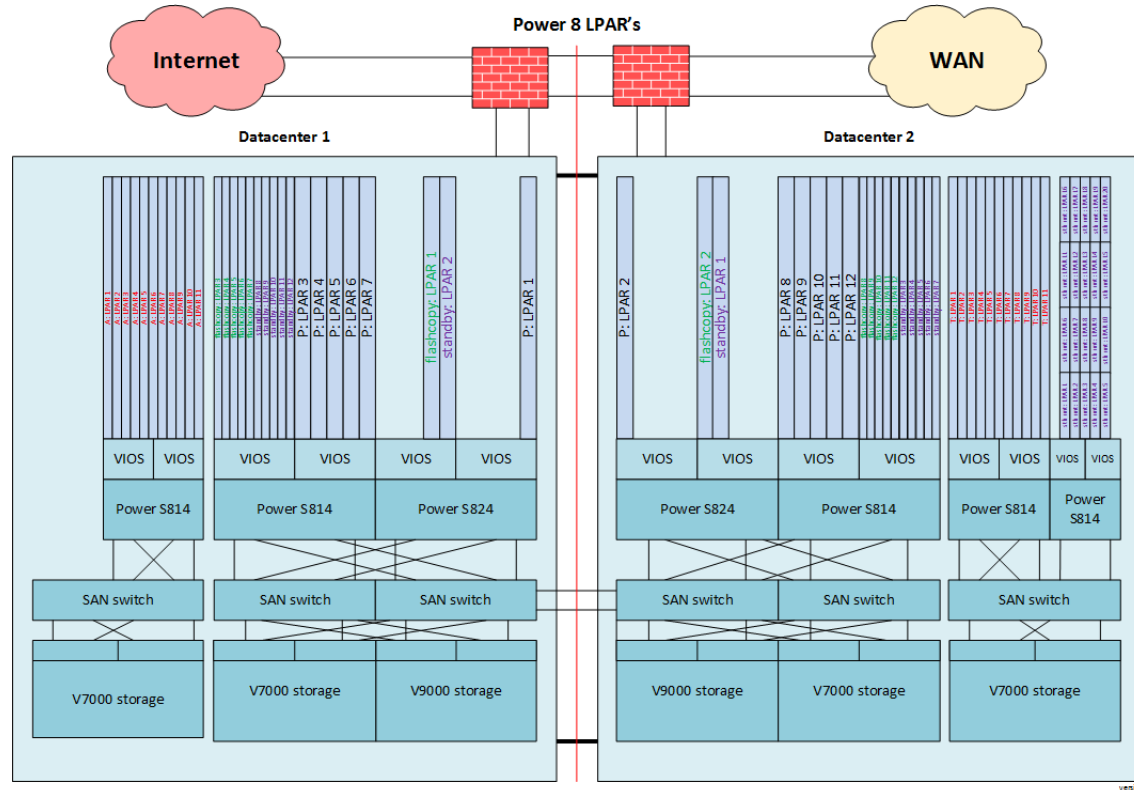
Following activities were performed to migrate from 770 with EMC-disks to 814/824 with IBM Storwize V7000/V9000:

- Configure Storwize: LUN's, Host connections
 - While system up-and-running:
 - Add 'new' Storwize-disks to Power7 lpar
 - Start End Allocation + Move Data from existing disks to new disks
 - Remove all old disks except load source from configuration
 - In restricted mode:
 - Copy Load source
 - Start Power7 lpar restricted with new disks, to verify that system starts ok
 - Power down Power7 lpar
 - Change host connections on Storwize from Power7 to Power8
 - Start Power8 lpar
-

Sligro Food Group past situation



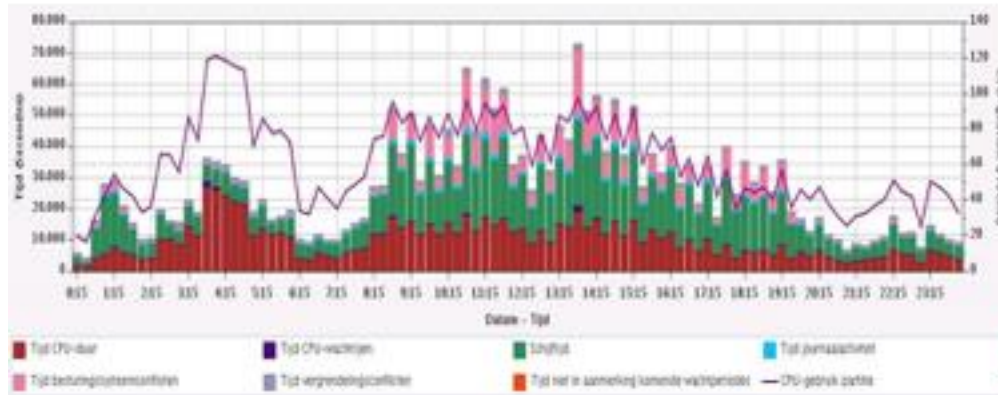
Sligro Food Group current situation



CPU and wait - compare

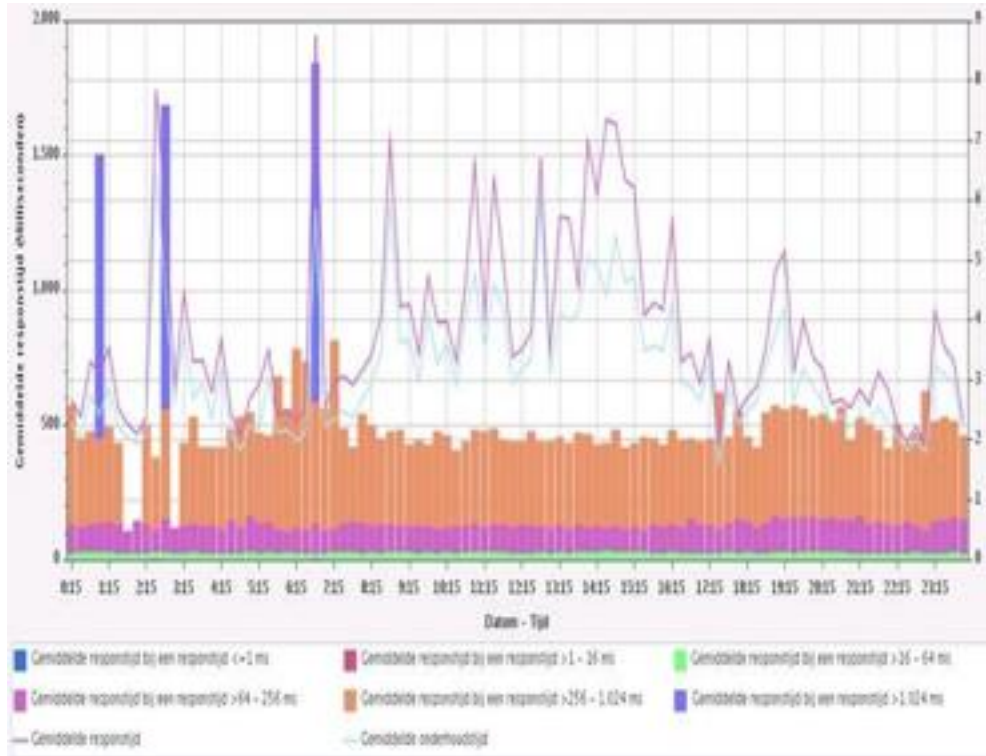
March 20, 2017
Power7 770, VMAX

March 27, 2017
Power8 824, VIOS, V9000

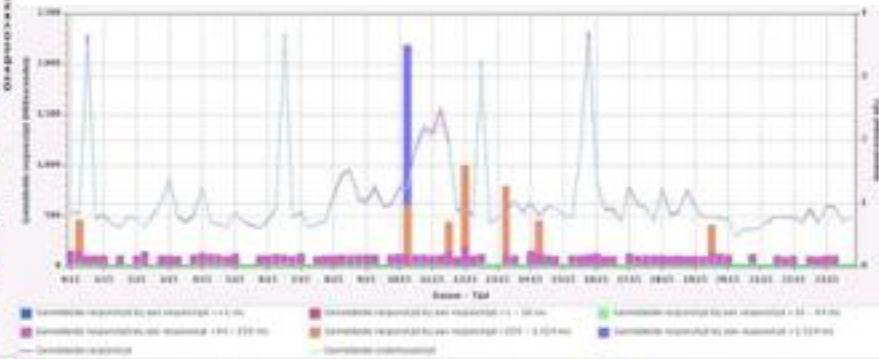


IO - compare

Power7 770, VMAX



Power8 824, VIOS, V9000



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 - **Actual results and Datacenter switch test (Easter 2017)**
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Datacenter switch - Easter 2017 (1)



- Overall goal:
 - Test disaster in datacenter 1
 - Some minor issues
 - Total time of all testing: 7 hours
 - IBM i goal:
 - Test switch of IBM i partitions 1 and 3-7
 - No issues
 - Partition switch took 20 minutes
 - Total time of all testing: 5 hours
-

Datacenter switch - Easter 2017 (2)



- Overall goal:
 - Test disaster in datacenter 1
 - IBM i goal:
 - Test switch of IBM i partitions 1 and 3-7 from datacenter 1 to datacenter 2
 - Test applications of IBM i partitions running in datacenter 2
 - Test switch of IBM i partitions 1 and 3-7 from datacenter 2 (back) to datacenter 1
 - Test applications of IBM i partitions running in datacenter 1 (again)
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common
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The Stigro logo is a large, three-dimensional sign mounted on a building. It features the word "Stigro" in a white, bold, sans-serif font with a black outline. The letters are set against a green oval background. A yellow graphic element, resembling a stylized 'S' or a bridge structure, is positioned behind the letters. The building's facade is visible below the sign, showing a grid of windows and structural elements.

Stigro

Questions?

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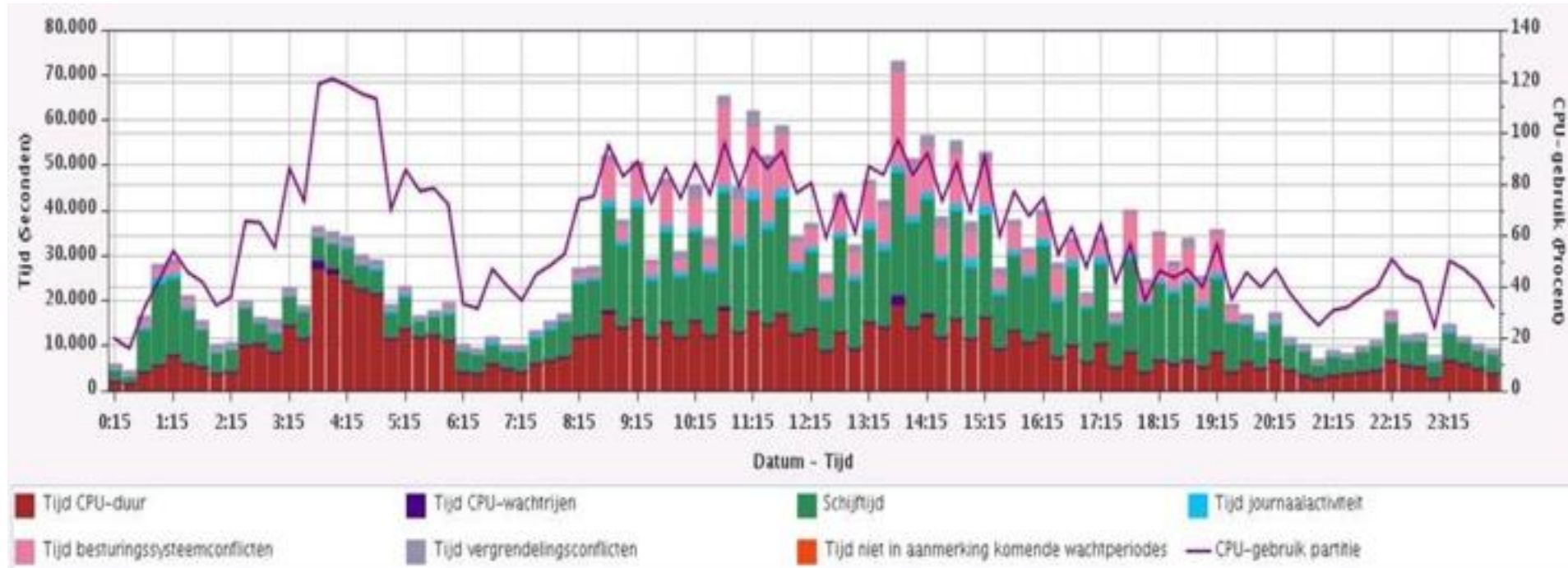
Stigro

Thanks

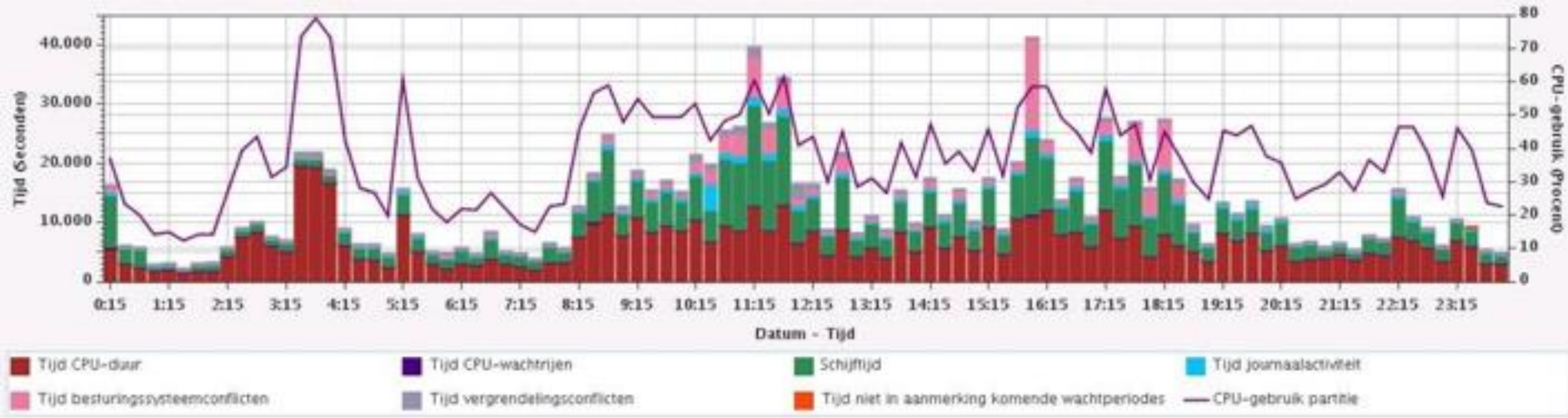
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Backup slides

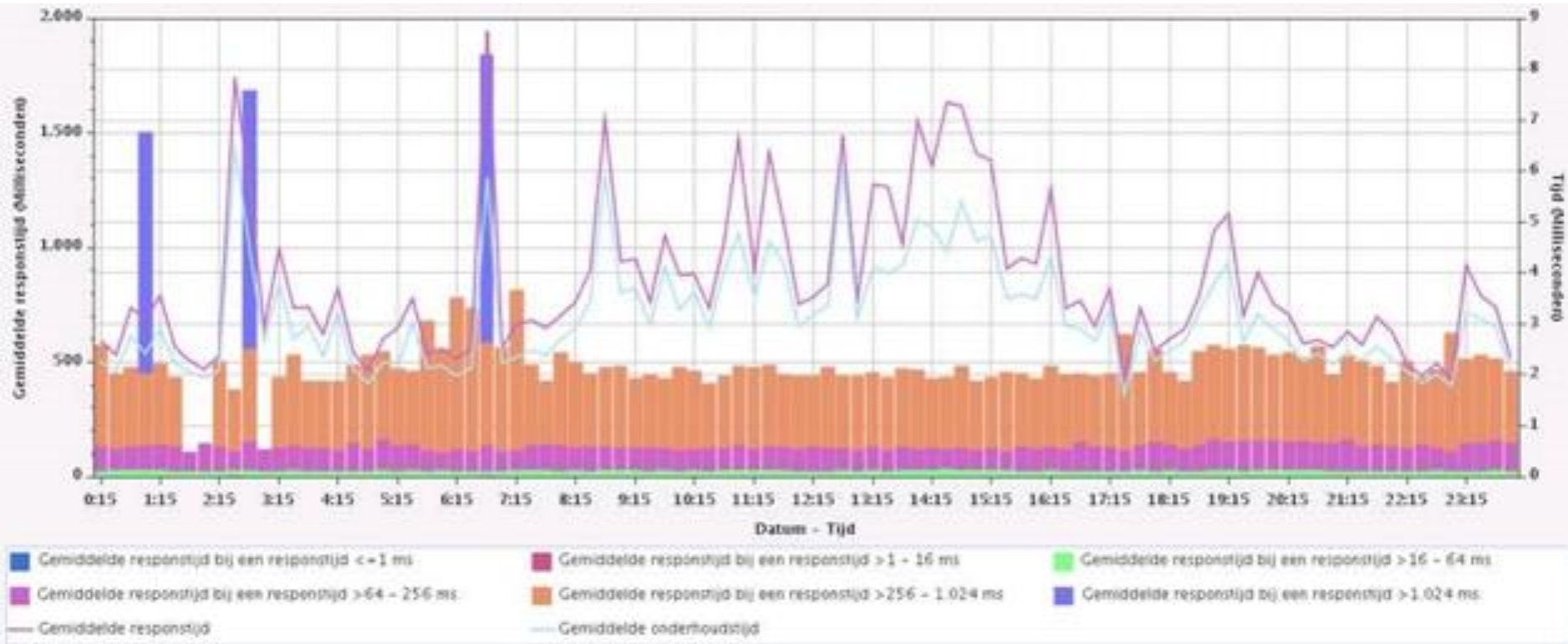
CPU and wait (Power7 and EMC VMAX)



CPU and wait (Power8 and IBM Storwize V9000)



IO (Power7 and EMC VMAX)



IO (Power8 and IBM Storwize V9000)

