

#### **Case Study**

# Automic<sup>®</sup> Workload Automation Proves Profitable for Borsa Istanbul

24000	1.1.1	in dian "		Infi an an		0.15	and the		Part, in Jun,	12.00	alia a	40.26	2.31	CONTRACTOR OF		660	OU
25	hadi	190 100	+ (T <sup>2</sup> C)	3%	23 .	90	%	0.06	1.6	3%	12.0.	60%					22
.9	10. 10.	0737,400	n dha Mi	710072	20.16	90	1	0.07	9.06	<b>6%</b>	1	29%					
58	6.44	008 900	4.976	n.02	12.10	200 Sm.	0,46	10.00	MAN CAR	Chiffel.	-14.29	-59.47	0.50	40.41	1		
43 <b>(</b>	).6(	1%	Q.UI	070	-HQ.	0.75	1/212			-6.24	-17.94	-27.88	2.59	71.07		1871	anar
-lef	1090	3%	0.00	1%2		1.23	2.76	0.70	1.14	10.9	11.43	19.03	3.44				70
8.1	0.61	6,700	54	1947	11.41	1.24	1.07	0.24	0			14.00			/.	12/	1
13		3,322,800	_633	4474		2.44	0.53		0.13	7.13	5.27	-6.08	· · · · ·	26.93	10.47	12221	38
2.5		3,867,300	29,580	7,493	61.24	0.42	1.17		0	-7.21	-10.75	5.47	2.92	44.32		175	+- 41
1.34		0 "	0.0	11 199	11.75	1.43	1.65	0.03	0.29	16.27	18.16	37,99	1.60	29,99		190	20
3.36	0.00	5,239,900	2 322.248	564,285	29.03	4.98	0.43	5.00	0.81	10.14	15.66	11.71	4.88	63,81	$\forall /$	545	47
395	-3.66	5,825,400	33,569	18,089	7.08	1.06	1.05	0.20	0.03	21.05	18.58	24.2	2.73	17/42	-/		
1.57	+1.95	2,399,100	3,776	4,310	53.21	2.02	0.41		, .	0.53	1.03	0.82		4.30		457	32
5	-0.99	479,300	2,389	3,300	13.13	1.00	0.09		10:1	10.89	10.09	6-9 6-70		78.30			
1.37	-0.72	182,000	0	2,788		0.44	0.13		12	40.04	-3.03	40.4	2.26	67.54	11.05	245	116
0.22	-1.30	17,288,600	) 13,224	3,491	3.67	1.10	0.64		0.09	-4.64	-4.9	-3.02		34.39			- 20
0.79	0.00	249,300	197	368	14.41	3.91	111	0.40	0.98	32.36	30.67	20.06	4.07	28.24		230	20
14.1	+4.44	2,913,100	40,573	3,540	14.41	1.94	1.01		0	-34.06	-55.1	-24.85		18.75			
3.42	0.00	0	0	3,789			-1.94		0			7.12		35.05		396	35
5.65	0.00	16,273,10	0 93,345	3,108	16.04	2.62	0.82		0.35	12.27	5.94	20.3	3.98	36.34		451	41
82.5	+0.92	4,700	385	2,640	9.61	0.56	0.79	4md 0	8.59	0.4	0.04	20.0	0.00	and the second second			

## **Client Profile**

**Organization:** Borsa Istanbul (BIST) **Industry:** Stock Exchange

## **Business**

Borsa Istanbul (BIST), formed by the merger of Istanbul Stock Exchange, TurkDex, and the Istanbul Gold Exchange, is the sole exchange entity in Turkey.

# Challenge

- Meet C-level reporting demands.
- Manage processing across heterogeneous systems.
- Automate 120+ steps in the start-of-day process for trading platforms.

# Solution

- Centralized management and real-time monitoring.
- Step-level restart and recovery when processing fails.
- Advanced forecasting of elapsed times for IT workload.

# Results

- Complex start-of-day and end-of-day processes in the Derivatives Markets now run more than 50% faster.
- Increased productivity in the Derivatives Markets with savings of 200+ human hours each month.

## **Business**

#### Turkey's Sole Exchange Entity

Borsa Istanbul (BIST), formed by the merger of Istanbul Stock Exchange, TurkDex, and the Istanbul Gold Exchange, is the sole exchange entity in Turkey. The new organization brought together all the securities exchanges operating in the Turkish capital markets under one roof. BIST operates five markets: Equities, Debt Securities, Derivatives Markets, Precious Metals and Diamonds. BIST's IT Systems provide an integrated trading environment to BIST members delivering the trading services to the clients. In the Derivatives Markets (DM), BIST processes more than 40,000 trades every day representing a typical trading value of approximately \$1.1 billion.

## Challenges

#### Hands On Connections

The BIST IT operations team, responsible for the Derivatives Markets (DM), needed to be aligned with the business and the development teams in order to achieve organizational goals and to meet C-level objectives and reporting requirements. DM application processing was spread across a heterogeneous IT infrastructure consisting of multiple operating systems (Linux, Windows, HP-UX, VMware) and databases (Oracle, Informix). Both the IT and business teams needed to change old habits, to move on from heavily manually-dependent applications, and to embrace the concept of automation.

The start-of-day, data dissemination, start/stop, and end-of-day processes are all crucial processes that the BIST IT operation team needs to get right every day. Each process involves complex sequencing of a set of activities that must complete in the correct order. The start-of-day process consists of nearly 120 steps with numerous interdependencies requiring extensive user interaction. The end-of-day shutdown initiates a flows that reconciles the day's activity and communicates detailed close-of-business market information to data organizations such as Reuters and Bloomberg. As part of running end-of-day processes, the IT operations team would need to contact BIST business analysts by phone at several points to confirm that processing could proceed.

"Since Operators couldn't determine how long jobs would take, they were tied up for long periods of time watching and waiting for tasks to complete," said Ümit Seremet, System Engineer and Project Manager, Borsa Istanbul. "It was not possible to see the whole process in one monitor. In addition, reporting was a real problem. We had to manually create, manage, and deliver custom reports to get executives the information they needed."

#### Solution

#### Automic Workload Automation

BIST identified that an automation solution could reduce runtimes and minimize the impact of errors on their production services. Automation would simplify the managing and monitoring of their applications and infrastructure systems providing end-to-end visibility of DM activity. When issues occurred, receiving immediate notifications with clear, concise diagnostic information would reduce problem resolution times. Better definition and documentation of workflows would expand the organization's knowledge base and eliminate the reliance on a few individuals to manage their business processes.

In addition to automating tasks related to their core business applications, BIST also sought a solution that could be applied at the infrastructure level: automating server and application provisioning, synchronizing backups across disparate platforms, automating some manual system administration tasks, and deploying virtual servers in their virtualized environment. After evaluating a number of providers, BIST selected Automic<sup>®</sup> Workload Automation because of its ease of use, rapid implementation, and ability to meet all of their established requirements.

Implementing Automic Workload Automation has allowed BIST to eliminate most manual confirmations from its processing for DM. Automic Workload Automation has also provided BIST with visibility across all enterprise IT workload through one central point of control, enabling BIST's business and IT operations teams to work together towards the common goal of developing automated, controlled process flows. BIST plans to use Automic Workload Automation's managed file transfer feature to streamline data dissemination processes and to ensure external agencies receive vital, up-to-date market information throughout the day and at close of business.

# Solution (cont.)

BIST has automated the release of new applications and updates from development through to production deployments with Automic Workload Automation. The solution orchestrates Puppet, SVN and other DevOps tools to create a seamless release management process. IT Operations is also able to dynamically create and delete

virtual server resources based on real-time, operational capacity demands.

#### "Automic Workload Automation has allowed us to make better utilization of our existing IT employees. Less effort goes into daily, mundane tasks. We've achieved consistency, efficiency and standardization of IT operations and now have more time to spend on developing new and innovative solutions."

- Ümit Seremet, System Engineer and Project Manager, Borsa Istanbul

Predictive monitoring provides BIST with improved forecasting for planning the elapsed time for its process flows. Separating scripts into more granular job steps combined with step-level restarting of failed workload has reduced recovery times. More meaningful error messages and automated SMS and email notifications result in problems being resolved sooner.

## Results

#### **Automation Pays Big Dividends**

Automic Workload Automation has enabled BIST to realize the following significant benefits:

- The start-of-day processing time in Derivatives Markets was reduced by 73%.
- The end-of-day shutdown time in Derivatives Markets was reduced by 51%.
- An increased productivity in Derivatives Markets resulted in a savings of 200+ human hours each month.
- A nearly 90% reduction in staff time was achieved by automating IT system tasks that were associated with some manual system administration tasks.

BIST intends to build on the success it has achieved with Automic Workload Automation in the Derivatives Markets by automating processes that handle other markets. BIST also plans to automate processing required to support new initiatives by the Nasdag OMX partnership BIST has entered.

"We have realized many quantitative and qualitative gains with Automic Workload Automation at Borsa Istanbul," said Seremet. "This has led to an automation culture developing within our IT department. Moving forward, we are now looking at every process to see where we can automate."

#### For more information, please visit ca.com/automation.



For product information and a complete list of distributors, visit our website at: broadcom.com

Copyright © 2019 Broadcom. All Rights Reserved. The term "Broadcom" refers to Broadcom Inc. and/or its subsidiaries Broadcom, the pulse logo, Connecting everything, CA Technologies, the CA technologies logo and Automic are among the trademarks of Broadcom

CS200-347463-0519 June 13, 2019