

Subject Name: Enterprise Solution Management

Subject Code: IS214

Academic Year: 2021/2022 (Term 2)

Change Report

Project Report 3

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Prof. Ta Nguyen Binh Duong Submitted: 30th March 2022

Change Report

Change definition

Requirements	a) New promotion setup for ESMOS shop [E4G09T02-11]				
	Vendor to update shop website by changing banner to Brands Parade Mega Sale update prices of items accordingly				
	b) Backend infrastructure upgrade for ESMOS shop [E4G09T02-12]				
	Vendor to change location of server from NA to SEA to reduce latency				
Technology	Setup Kubernetes environment, master and nodes. Install and configure Weave Net add on. Install MySQL and setup databases for new configuration.				
	Setup and host ESMOS Shop in Kubernetes cluster Decouple MySQL				

Before the change

Once both changes were approved by the CEO, the IT Support Team created an RACI matrix and communication plan to outline all stakeholders throughout the change process. We also identified the urgency and risk for both.

Actions	сто	Shop Manager	Vendor	Project Admin	Customer Manager	Vendor Manager
Change preparation						
Acquire implementation plan	-	I	С	А	I	R
Acquire promotion materials	-	С	I	А	R	С
Create communications plan	-	-	-	А	R	С
Set up staging environment	-	I	R	I	I	А
Test staging environment	-	I	R	I	С	Α
Change Implementation						
Set up production environment	I	I	R	I	I	Α
Test production environment	I	I	С	Α	С	R

Table 1: RACI matrix

Who	What	When	How	
Shop Manager	 Change preparation, implementation, and monitoring status Major incidents, if any 	At key checkpoints before, during, and after the change; ad hoc for incidents	esmositop@gmail.com	
сто	 Final change implementation status Major incidents, if any 	Upon change completion; ad hoc for incidents	esmoscto@gmail.com	
Vendor	Authorization for change	When the materials needed for the Change have been acquired	esmosvendor@gmail.com	

Table 2: Communication plan for stakeholders to inform

Change	Urgency	Risk	
New Promotion Setup for ESMOS	Medium Justification: As the change was brought up 1 week prior to schedule, urgency was not too high at that point in time.	Medium Justification: As the prices have to be correctly reflected on the website, but main functionality of the website is not at risk.	
Vendor Infrastructure Upgrade	Medium Justification: As there were no issues with high impact to business processes present, a high level of urgency was unfitting. If the upgrade	High Justification: Incorrect setup of databases could lead to the site to cease functioning.	

Table 3: Change urgency and risk identification

The change tickets were logged after we identified the respective appropriate urgency and risk levels as shown in Table 3. We then prepared all materials by acquiring the new promotion banner from the E4-W10-ProjectChange briefing document, contacting the Shop Manager for a full list of items, and contacting the Vendor for more details on the hour by hour and rollback plans and their contact details.

Once all details were consolidated, we emailed the Shop Manager the documents from the Vendor for her authorisation. To the Vendor, we sent the promotion banner and price list to be loaded into the staging environment.

We waited for the Vendor to confirm that the sale banner and price list had been received, loaded, and tested in the staging environment. Subsequently, we sent the staging environment to the Shop Manager to confirm that change was reflected accurately.

During the change

After validating the changes made in the staging environment, the Vendor Manager signalled the Vendor to proceed with implementation on the production environment. The Customer Manager also contacted the Shop Manager to inform her that the change process had begun in the production environment. Once the Vendor notified us that the change had been implemented with a link to the production environment, the Vendor Manager checked for errors and the Customer Manager proceeded to update the Shop Manager.

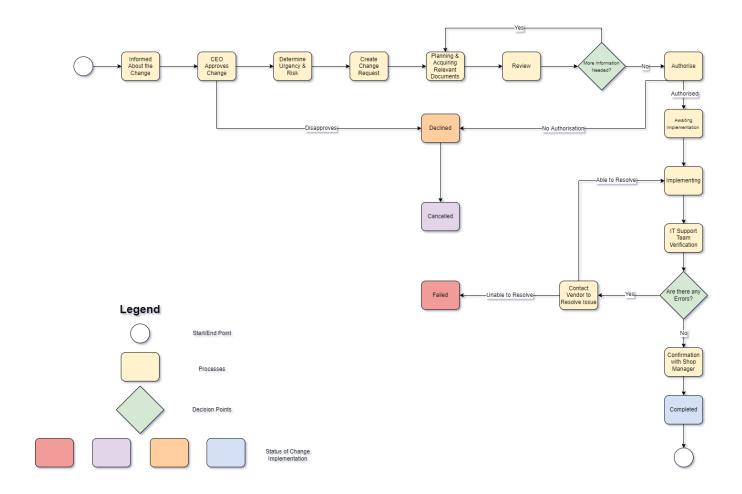
After the change

After we received the email from the Vendor stating that the changes have been made and deployed on their end, we emailed the Shop Manager and CTO informing them that the website had been updated. However, as the team continued to test the website to ensure all functions were present, we came across an issue where users were not able to add to cart directly from the home page. Attempting to do so would result in an error as captured in *Appendix 16*.

We immediately contacted the Vendor for incident resolution and flagged the issue to the Shop Manager and CTO. Concurrently, we logged an incident ticket on Jira for documentation purposes (see *Appendix* 9 and 10). After the Vendor confirmed that the incident was resolved, the same stakeholders were updated and the ticket was closed.

To supplement the monitoring we were doing on Freshping, our group decided to use Hexowatch's availability monitoring tool as well on this production environment. This was as an extra layer of surveillance to ensure we do not miss any incident.

Change Process Diagram



Monitoring Report



Image 2: Freshping website performance metrics

	Target	Before Change (IR)	Difference	After Change (CR)	Difference
Response Time	< 259 ms	633ms	+ 374ms	505ms	+ 246ms
APDEX Score	> 0.8	0.96	+ 0.16	0.50	- 30
Uptime	> 99.999%	89.6%	- 10.399	100%	N/A

Table 3: Target v.s. Actual values before and after the changes

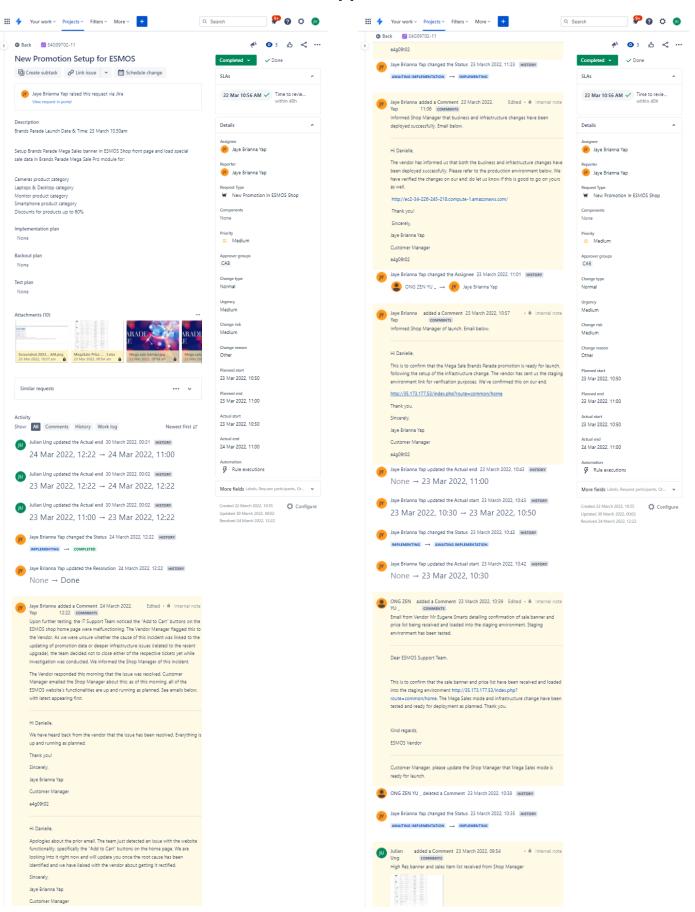
Following the changes made, response time improved compared to the pre-change value (633ms before vs 505ms after), but still did not hit the target of 259ms. APDEX actually decreased, falling below both pre-change and target values. On the other hand, the ESMOS shop experienced **100% uptime** over the 3 subsequent days of monitoring. To confirm, we conducted an additional availability monitoring check of the production environment on Hexowatch and found that the production environment indeed did not experience any downtimes (see *Appendix 11*). This attests that the deployment was successful.

Upon detecting the 2 below-optimal values, the IT Support Team sent an email to the Vendor (see *Appendix 12*) to have this investigated. We conducted our own investigation as well and used an IP logger platform to find that the server region was still set to the United States, specifically in New Jersey. A 2nd website validated this as well (see *Appendix 13*) to find that the server region was still set to the United States. As the point of the change was to transfer the ESMOS shop server to the Asia Pacific Region precisely to reduce latency, this was alarming; another email was sent to the Vendor to inquire about this major discrepancy (see *Appendix 14*).



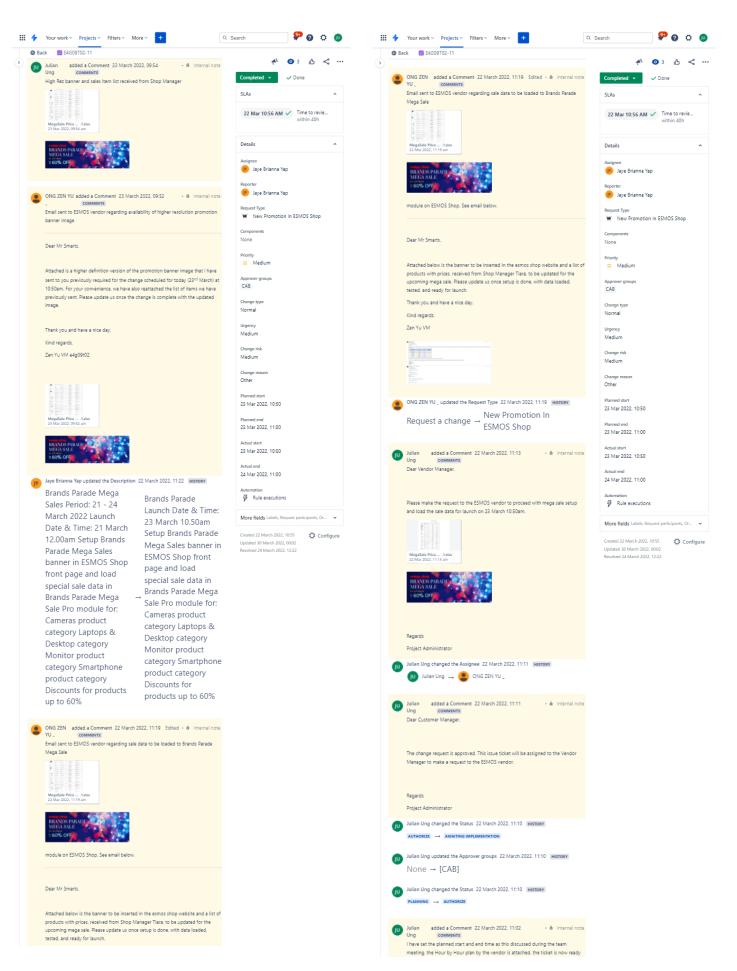
Image 3: Server details from iplogger.org

Appendix



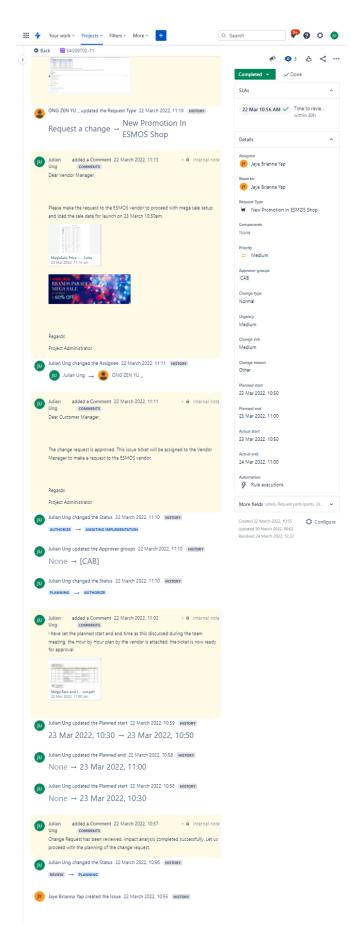
Appendix 1: Ticket no. [E4G09T02-11]

Appendix 2: Ticket no. [E4G09T02-11]

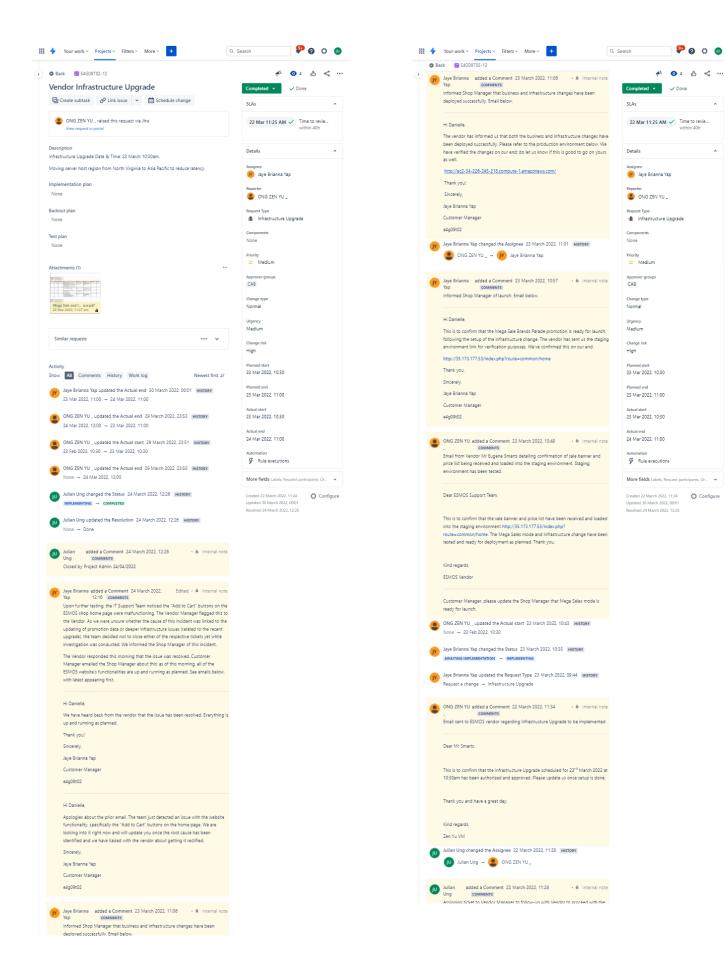


Appendix 3: Ticket no. [E4G09T02-11]

Appendix 4: Ticket no. [E4G09T02-11]

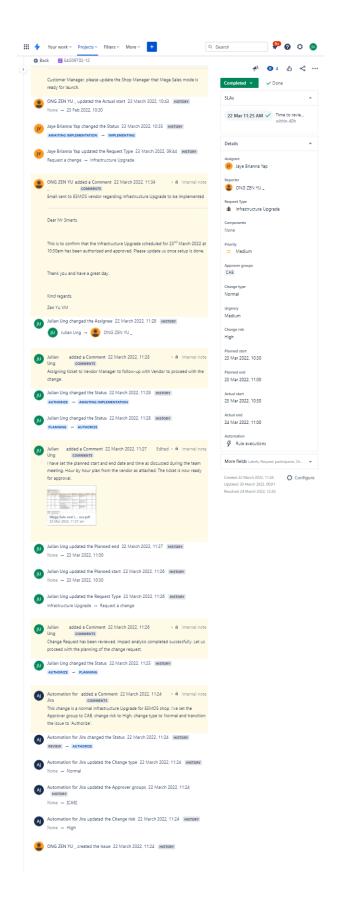


Appendix 5: Ticket no. [E4G09T02-11]

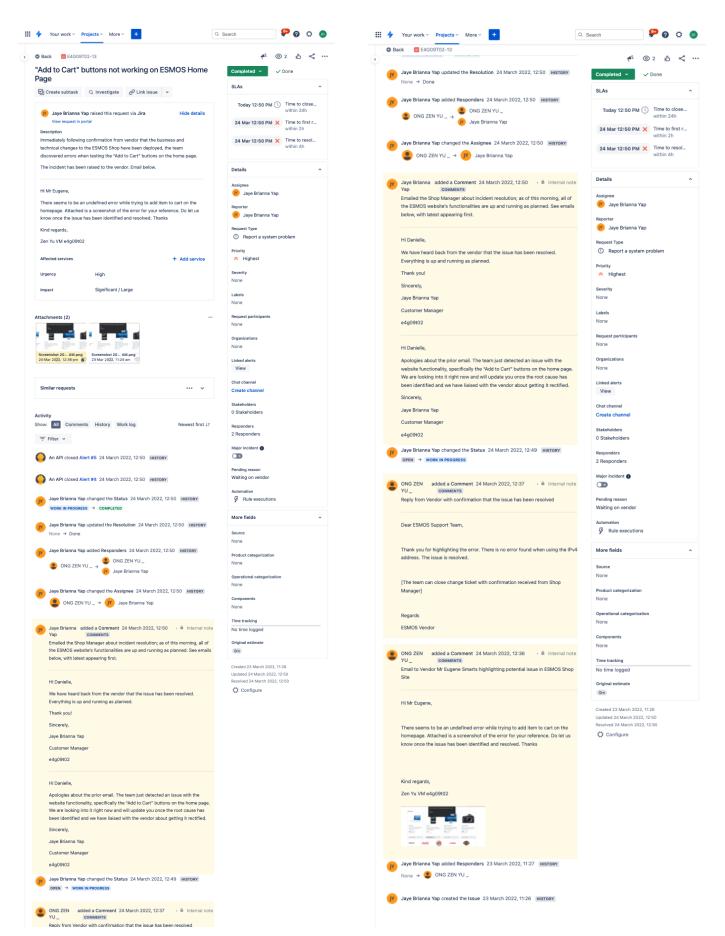


Appendix 6: Ticket no. [E4G09T02-12]

Appendix 7: Ticket no. [E4G09T02-12]

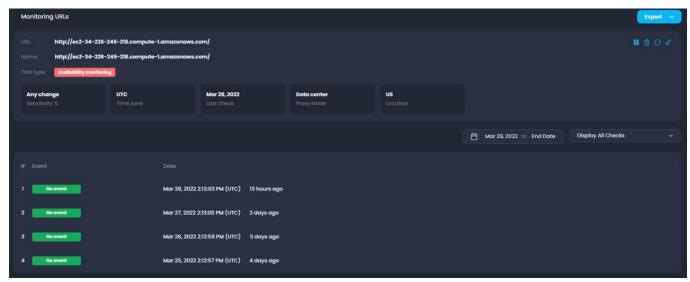


Appendix 8: Ticket no. [E4G09T02-12]

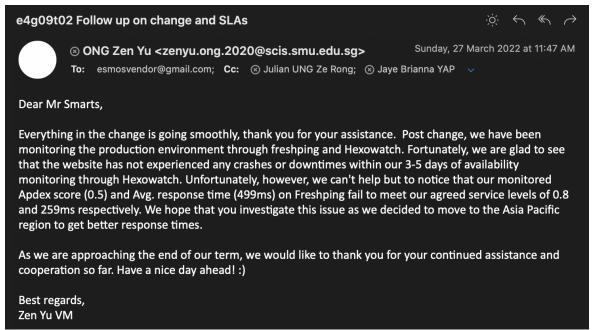


Appendix 9: Ticket no. [E4G09T02-13]

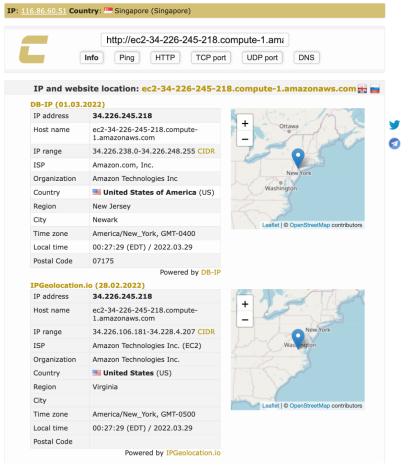
Appendix 10: Ticket no. [E4G09T02-13]



Appendix 11: Hexowatch availability monitoring page



Appendix 12: Email follow-up with Vendor



Appendix 13: Server details from check-host.net

ONG Zen Yu Tue 3/29/2022 12:35 PM

To: esmosvendor@gmail.com

Cc: Julian UNG Ze Rong; Jaye Brianna YAP

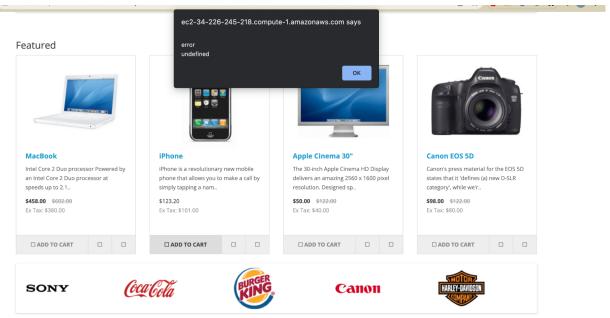
Dear Mr Smarts,

Upon further investigation of the unusually high response time of the production environment (http://ec2-34-226-245-218.compute-1.amazonaws.com/) using two separate IP loggers, we found that the server region is located in New Jersey, USA. May we ask why the region has not been updated to Asia Pacific as planned?

Regards, Zen Yu VM

Reply Reply all Forward

Appendix 14: Email to Vendor on server region issue



Appendix 15: "Add to cart" error on ESMOS home page