

Description:

FlexNet Manager Suite customers using EU Cloud services experienced Degraded performance impacting the following:

- Some customer imports and reconciliation jobs were unable to complete in a reasonable timeframe or failed. This left some customers without access to a current licensing position.
- ARL updates were unable to be completed resulting in the Application Recognition Library data being around 2 weeks old.
- Beacon authentication failed preventing Beacon downloads from updating customer Beacon servers and Inventory agents.

All other FNMS EU services continued operating normally during this Incident.

Timeframe: October 21st 1:00 AM to 31st October 4:30 AM CST

Incident Summary

On Sunday the 20th from 10:30pm CST following the deployment of FNMS 2019 R2 into the EU FNMS production environment, customers initially experienced Imports and Reconciliation tasks taking longer than expected. While monitoring the EU environment, on Tuesday 22nd from around 8pm CST, it was observed that the overnight Batch processes were consistently taking longer than was expected. Further investigations revealed the new Licence Assignment Transparency feature was causing Batch processing performance to be degraded. A hotfix to disable the new feature was deployed to production by 8:00am on Wednesday the 23rd CST. Inventory Beacon downloads were also found to be failing as a result of change designed to improve performance – the configuration was further improved re-enabling Inventory beacon downloads.

On Wednesday the 23rd at 8pm CST, the Production EU environment was switched over to the new enhanced Batch processing system. After this upgrade it was determined that ARL Imports and random customer imports were failing. Investigations revealed that two Batch system components had not been installed causing business data processing and ARL import failures. This was corrected on October the 28th at around 8:30pm CST.

Further investigations revealed that Batch processing performance was still significantly lower than pre-R2 levels and the queue was continuing to increase in size. On the 27th at 8am CST a database hotfix was deployed to fix an issue resulting in some Batch jobs being marked as failed when they had been completed successfully. This was followed up on the 28th at 7:30am CST with a second Hotfix to remove the Licence Assignment transparency feature entirely to prevent customers from inadvertently using it.

On the Tuesday the 29th at around 5:30pm CST it was discovered that the ARL Import task was scheduled to run daily as part of the new batch processor system. This was contributing to addition Batch processing backlog processing delays and was re-configured to run weekly and temporarily disabled until backlog processing could be completed.

On October 30th at 8am CST, several long running queries were killed manually as they were incorrectly considered unlikely to complete within a reasonable time frame – this delayed some customers from completing imports and subsequent reconciliation jobs. A Large customer import was then retried unsuccessfully – Investigations found that the batch system was being overwhelmed by a small number of customer beacons trying to communicate with the beacon Service at extremely short intervals. Customer beacons were found to be retrying due to a lack of response from the Beacon service. As a result, the beacon Service was causing CPU utilisation to stay at 100%.

From around 2:30pm on the 30th CST, the beacon Service was moved to a dedicated system improving performance of the batch system despite several customer beacons continuing to communicate with the Beacon Service at extremely short intervals.

On October 31st from 4:30am CST onwards close monitoring of the EU environment revealed that it was now stable and Batch processing was performing ~50% more efficiently than prior to the 2019 R2 release.

Root Cause

This incident was caused by a number contributing factors.

Primary Causes

1. A new Licence Assignment Transparency feature was found to cause a severe performance degradation in the enhanced Batch processor system
2. Two required components were missed during the build of the new enhanced Batch System and not discovered during testing

Contributing Causes:

1. A configuration issue prevented customer Inventory Beacon downloads from completing
2. An issue in the Beacon service caused it to stop responding to customer beacon requests resulting in excessive retries from customer Beacons
3. Customers were requesting inventory package downloads every few seconds causing backlog in the queue to build up
4. Licence Assignment Transparency feature was not fully disabled with the first hotfix and required a second hotfix to remove the code entirely
5. Application Recognition Library update process was set to run daily (instead of weekly during the new enhanced Batch system build) adding additional processing delays to customers daily Batch schedules

Corrective Actions

1. Enhance testing to ensure issues with new components and performance are detected and corrected prior to production deployment
2. Improve monitoring system to provide greater insight into the performance of customer facing services eg imports, exports and reconciliation tasks
3. Improve Customer Beacon service to prevent them from excessively retrying to contact the cloud beacon service in the event of a cloud beacon service issue
4. Review and improve customer Incident communications to provide better clarity into Incidents and the impact they are causing