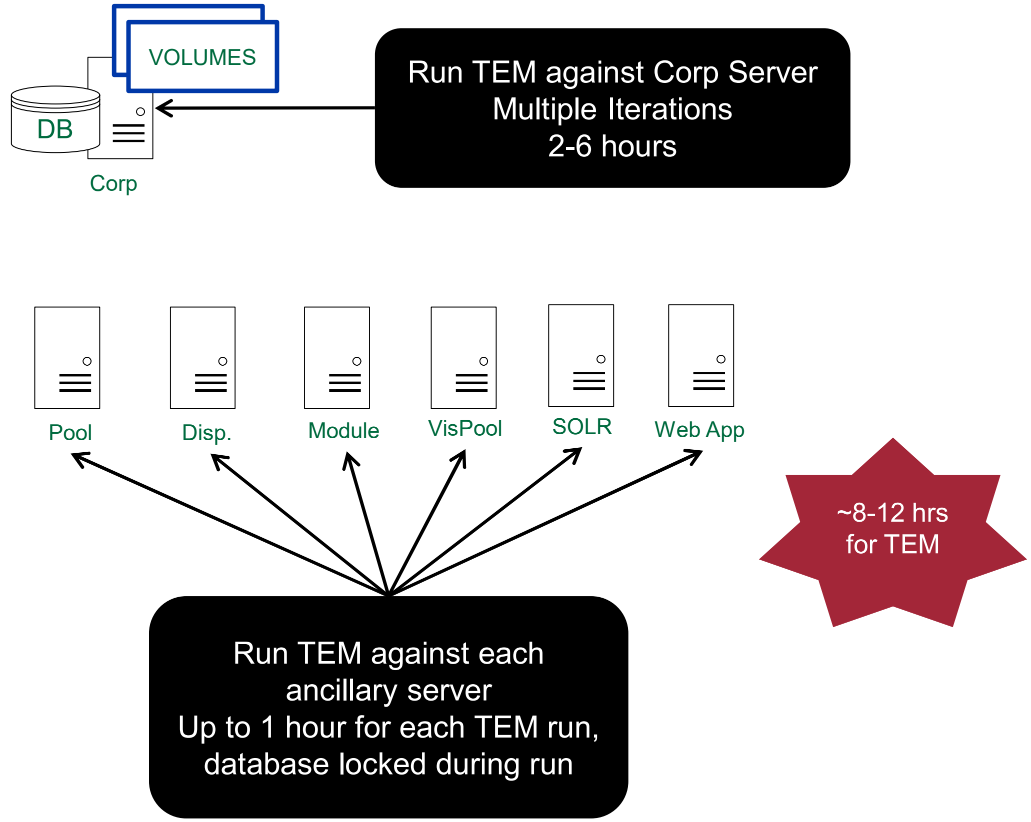
PLM Environment Flip Process

Robert Turman – Northrop Grumman

Standard Upgrade Methodology

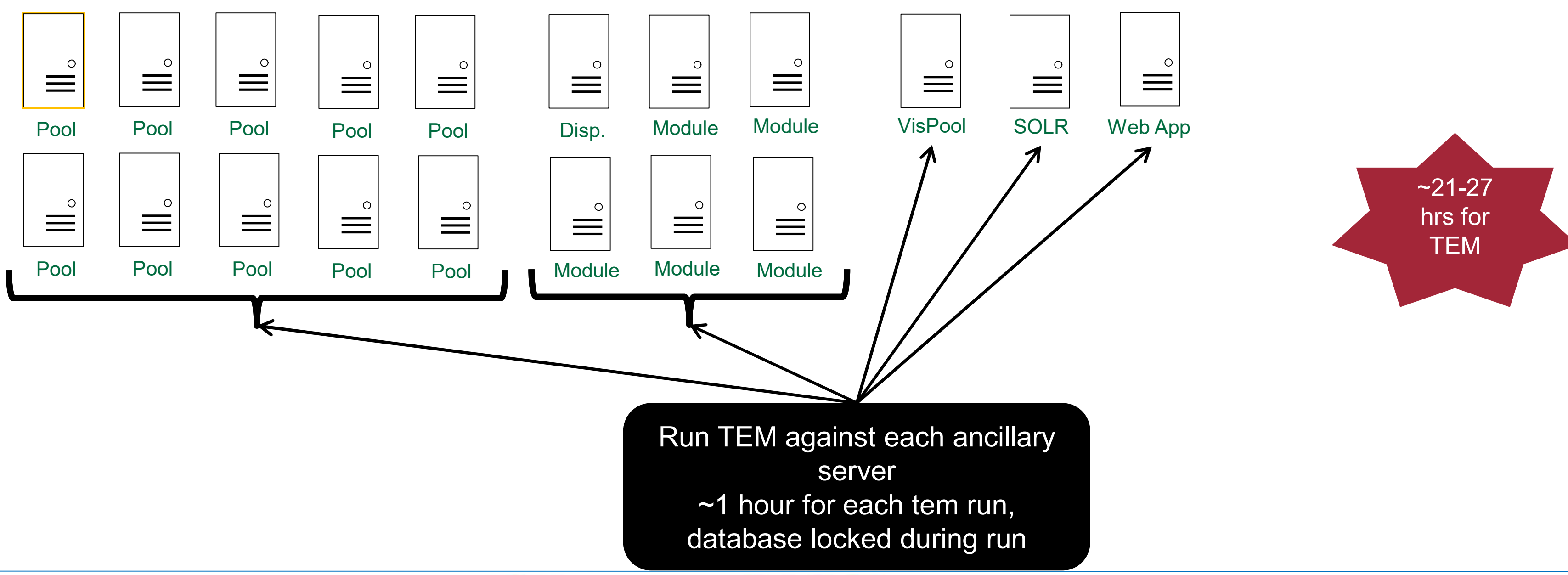
- Upgrade/Patch Base Code
- Add or Update Features
- Deploy Custom Templates
- Update Administrative Data

- Major upgrades required TEM to be run on every server.
- TEM runs were linear and locked the database.
- Additional post install steps required for each server type



Why mess with a good thing?

- **As the infrastructure continued to grow this became unsustainable**
- **This resulted in upgrades that were over 35+ hours long.**



So, what was the problem?

- **30 hours upgrades exhausted our outage windows and our staff**
- **Majority of errors caught during post upgrade validation testing were changes missed on the move to production**
- **Very few issues were because of TEM deployments or the administrative data load scripts**
  - **Automation for the win**
- **A no-go vote would prompt a rollback**
  - **Requires Database restored**
  - **All servers reverted**
  - **This would add an additional 4 hours onto the outage**

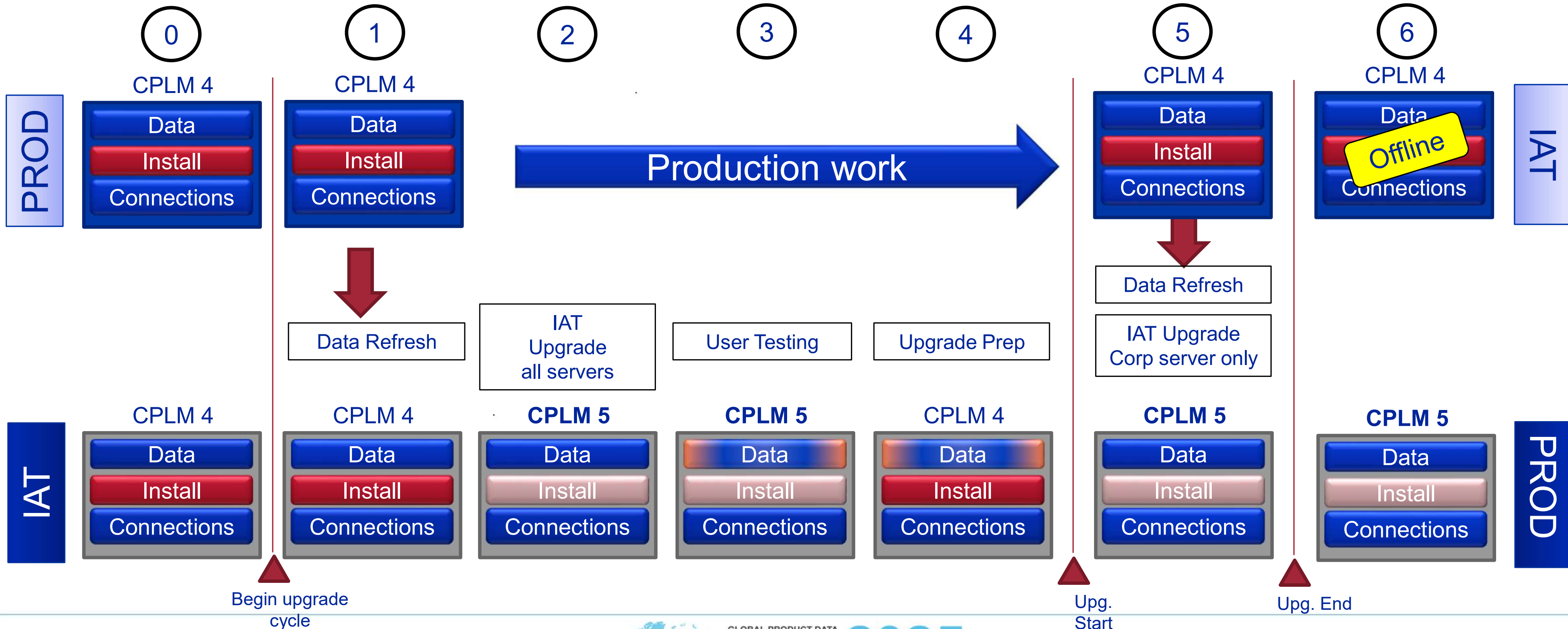
What if…?

…we could make the validated, approved/accepted IAT environment production?

- **No need to upgrade all the ancillary servers individually (web, pool, dispatcher, translation, SOLR and Visualization Server)**
- **Users would go live with a thoroughly validated infrastructure**
- **In the event of a roll back, production is ready to go (untouched)**

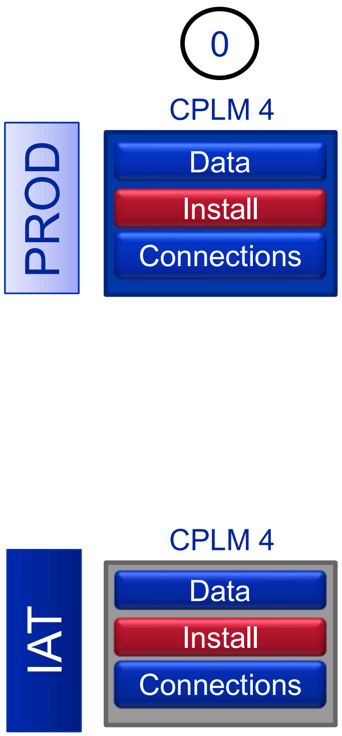
Flip the script

- **During go live the current IAT environment is "flipped" to become the production environment. And conversely the former production environment is now acting as the current IAT environment.**



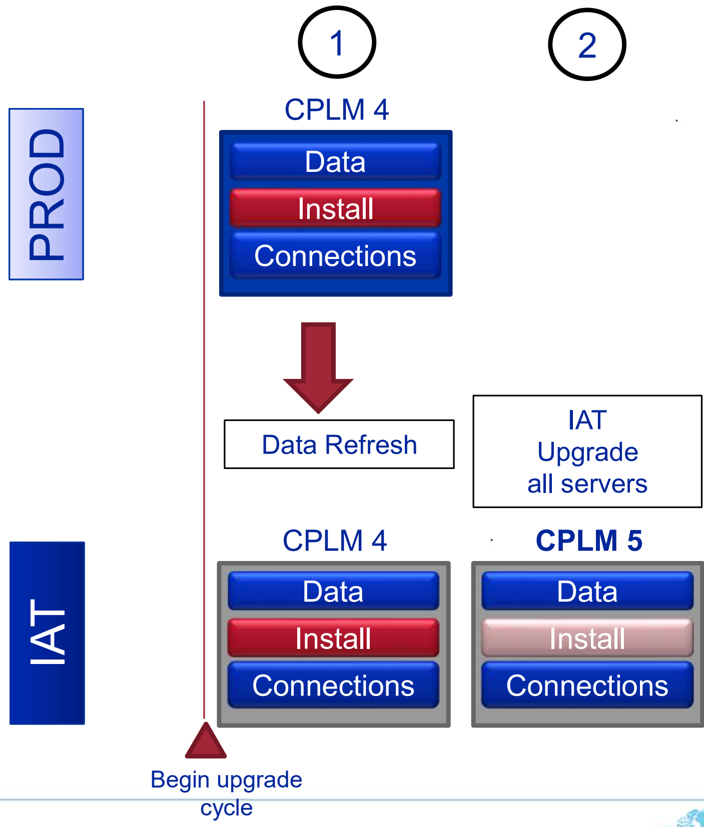
GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2025

Start from zero



- **The Data has diverged since the last upgrade (database and volumes)**
- **The Install is at the same version with the same datamodel, binaries and scripts (tcroot, tcdata)**
- **The Connections are server references that have been aliased as ‘prod’ or ‘test’**
  - **http//eqube-prod.domain.com**
  - **http://cplm-prod-pool:3000.domain.com**
  - **\\prod-repo**

Refresh and upgrade



(1) Refresh the Data

- Import the PROD schema into the IAT instance
  - Update env specific pointers (i.e. vols and prefs)
- Copy/Sync the volume data over

The PROD and IAT environments are ‘identical’ aside from the test and prod references

(2) Upgrade IAT

- Backup your essentials!
  - Only tcroot and tcdata on the Corp server
- Perform the full upgrade over the course of a week*

IAT and ALL component servers are now at the higher version with a copy of production data that is less than a week old

Meanwhile, production continues productioning.

Test and prep

PROD

IAT

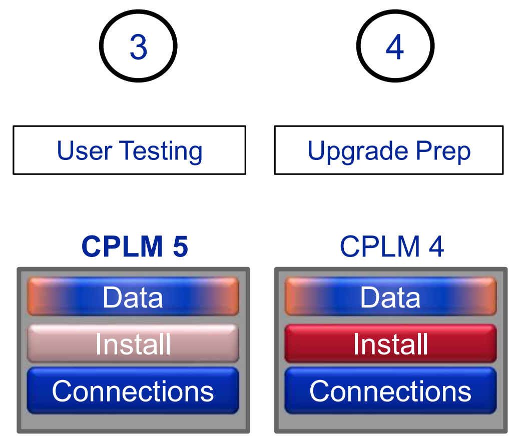
(3) User testing

This follows its normal defined cycle.

IAT contains current production data to validate against.

Users have been able to test with actual production data.

And production continues producing.



(4) Upgrade Prep

Once ATP has been given for production deployment, the IAT env is taken offline.

- The upgraded tcroot and tcdata are backed up
- The previous tcroot and tcdata are restored

IAT is in a mixed state, the database is at CPLM 5 and the binaries are at CPLM 4

PROD

IAT

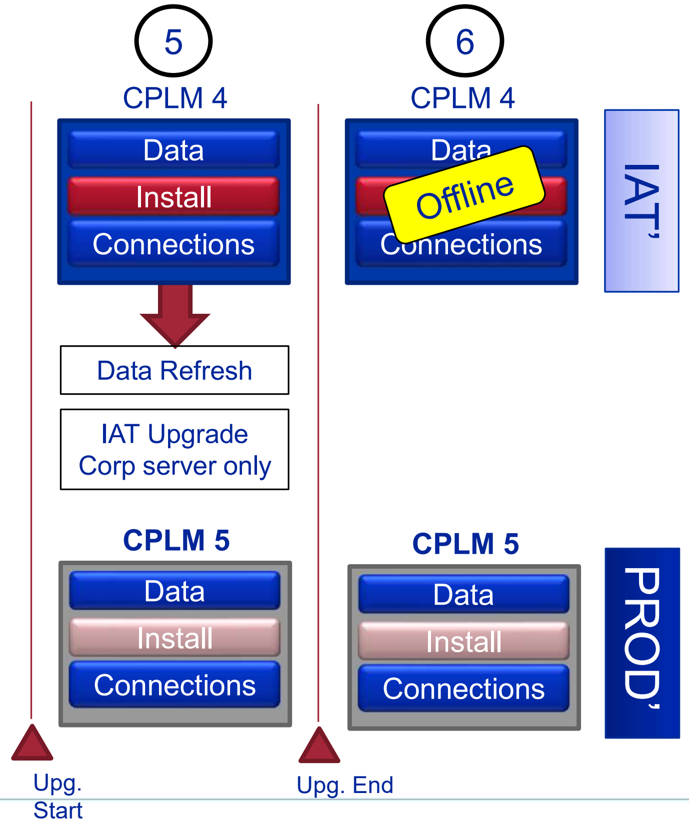
(5) Refresh and Upgrade

Refresh the Database from prod one more time and perform the TEM upgrade ONLY on the Corp server.

One last step…Flip the aliases.

Now IAT is PROD', PROD is IAT' and **(6)** offline. This ensure no wires are crossed

After stabilization, IAT' can be refreshed in a similar manner (without TEM).



Behind the scenes

- **There are two identically configured environments that take turns being production and test**
- **Both are hosted on Production equipment (Exactly Same Specs)**
- **Each environment is configured to communicate <u>within</u> its boundaries using absolute server names**
- **All services <u>outside</u> the server boundaries use aliases to ensure continuity**
- **Clients are configured with aliases so users are not impacted with the backend change**
- **We developed a "toolkit" of custom scripts to automate a majority of these tasks**

Thank You for your time

Global Product Data Interoperability Summit | **2025**

Any Questions?