

# Janus - 2018 TPF Users Group

z/TPF Automated Deployments

24-Apr-18



**TECHNOLOGY**

# Agenda

- Why Janus?
- What is Janus?
- Architecture Overview
- Load Window Example
- Additional Information
- Q&A



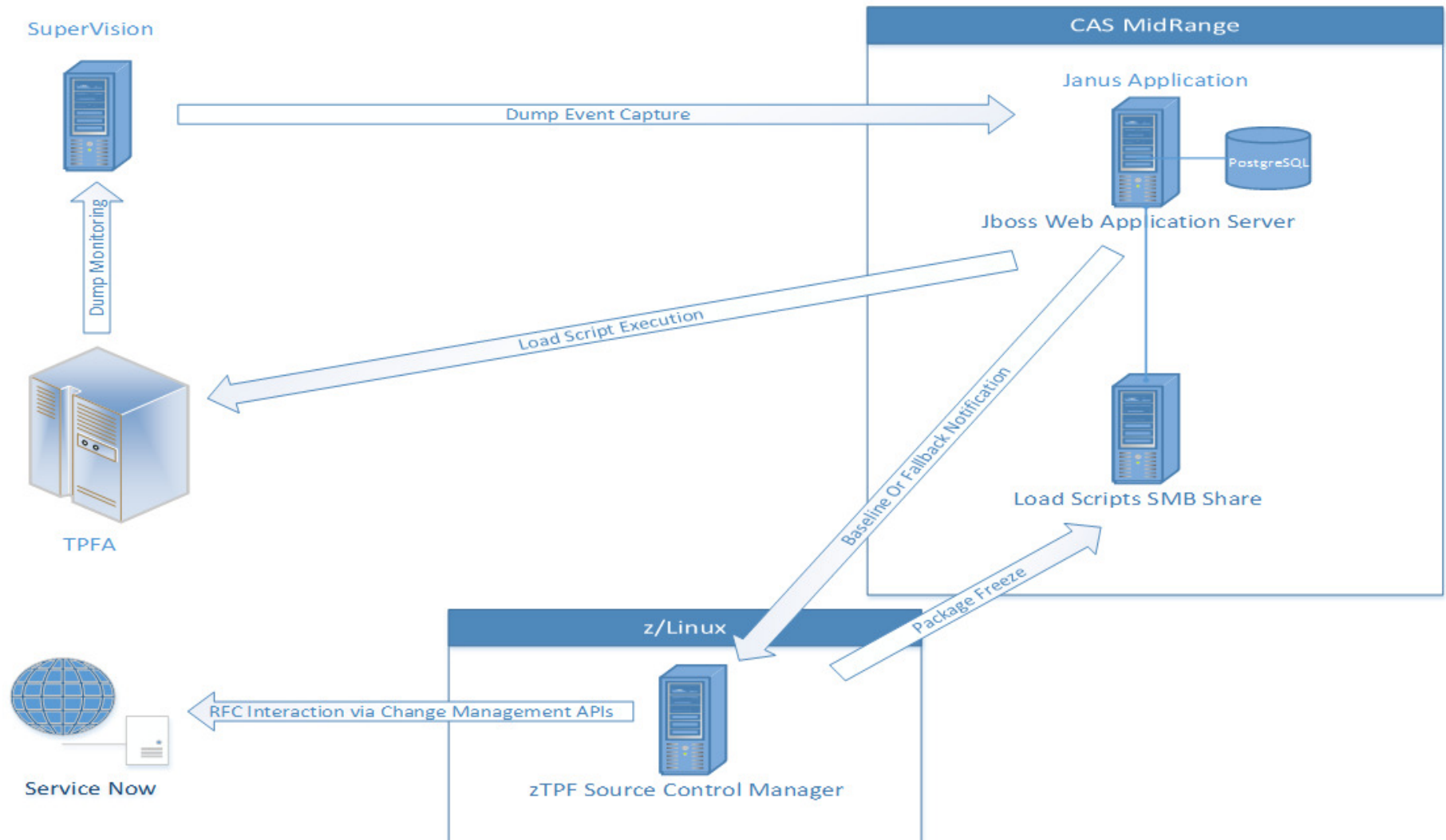
# Why Janus?

- **Limited Continuous Delivery capability**
  - *CAS loads are script driven, but commands are manually entered by operations team*
- Difficulty pin pointing problems to a specific package because of low “burn in” time
- **Failing fast isn’t fast enough**
  - *Backing out of faulty loads requires CAS operations to manually find the script and then manually enter the commands*
- Manually entering commands can lead to errors.
- Developers must be present on the load bridge, even when their changes aren’t immediately loading
- Longer load windows would tie up individuals for long periods of time

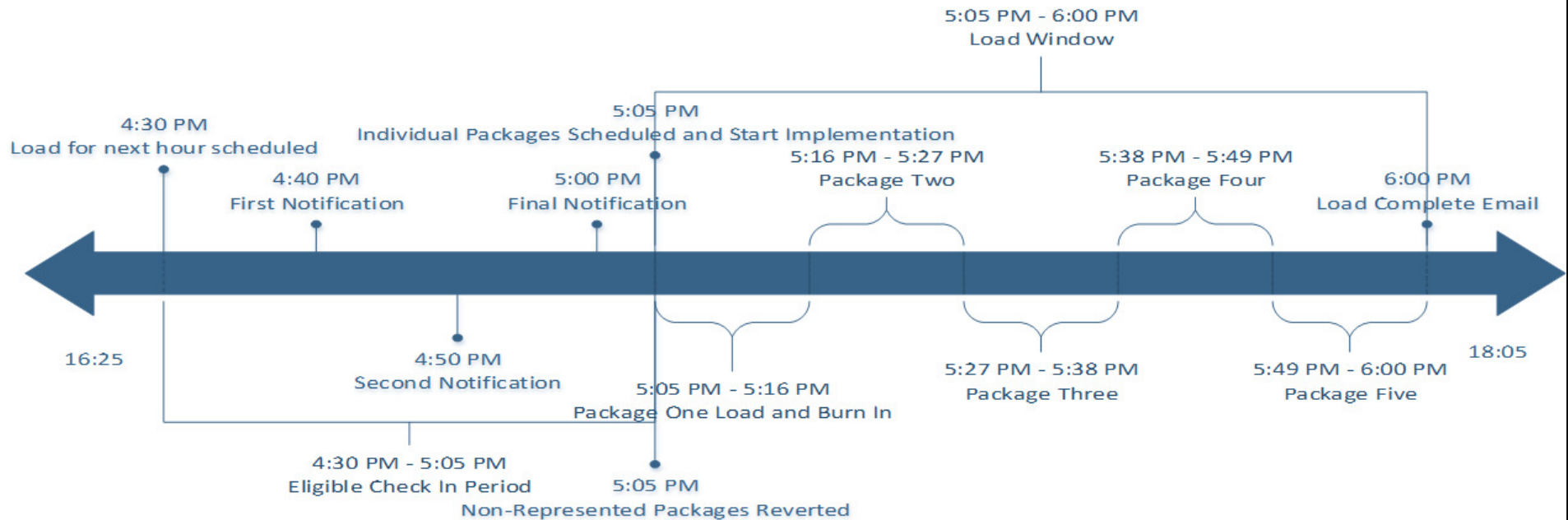
# What is Janus?

- z/TPF automated package deployments for non online updates packages
- Ability to spread changes out throughout a longer load window.
- Three key authentication user check in system
  - Developer, Operations, Coverage
- TPF dump parsing and capture
- Automated fallback of changes that cause dumps
- Manually triggered fallback at the request of the developer, coverage, or operations team
- Automated Start and End Implementation in Service Now
- Multiple console outputs (Web, Slack)
- CRAS entry RESTful API for whitelisted applications

# Architecture Overview



# Load Window Example





# Sample Process Flow

## ➤ 1) Developer Freezes Package For Load

Package Title:	<input type="text" value="Test Package Janus"/>	APPL:	TPFD	Owner:	Christopher James Cooke(ccooke)
Package Type:	<input type="text" value="Standard"/>	SandBox:	<input checked="" type="checkbox"/>	Group:	gltpfcv
Load Date:	<input type="text" value="04/15/2020"/> <input type="text" value="17:00"/>			Status:	DEV

Refresh Package

Update Package

▼ Components

CheckOut

SCM

Component Modified by Check-In Time

Check-In

Toolkit

Component Modified Date

Check-In

Delete

Copy Names

Dependencies

Dsects

MQ Message Templates

Create Project

Build

Check Contention

Audit

Freeze

Delete

# Sample Process Flow

- As Load Approaches, Janus Calculates And Distributes Packages Across Load Window.

	2/15/2018, 22:39:58	47484	gltpfcv	zsmauto	Janus Auto Loader	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 22:49:55	47485	gltpfcv	zsmauto	Test For Janus 13	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 22:59:54	47486	gltpfcv	zsmauto	Test For Janus 14	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 23:11:59	47491	gltpfcv	zsmauto	Test For Janus 24	scheduled	Check In	Coverage	Ops	Revert
🕒	2/15/2018, 23:23:58	47488	gltpfcv	zsmauto	Test For Janus 21	scheduled	Check In	Coverage	Ops	Revert
🕒	2/15/2018, 23:35:57	47489	gltpfcv	zsmauto	Test For Janus 22	scheduled	Check In	Coverage	Ops	Revert
🕒	2/15/2018, 23:47:56	47490	gltpfcv	zsmauto	Test For Janus 23	scheduled	Check In	Coverage	Ops	Revert
🧑	2/15/2018, 23:59:55	47487	gltpfcv	zsmauto	Test For Janus 20	scheduled	Check In	Coverage	Ops	Revert



# Sample Process Flow

- As Package Load Time Approaches, Developer, Coverage, And Ops Check-In.

Janus Auto Loader									
🕒	2/15/2018, 22:39:56	47484	gltpfcv	zsmauto		scheduled	✓	✓	✓
🕒	2/15/2018, 22:49:55	47485	gltpfcv	zsmauto	Test For Janus 13	scheduled	✓	✓	✓
🕒	2/15/2018, 22:59:54	47486	gltpfcv	zsmauto	Test For Janus 14	scheduled	✓	✓	✓
🕒	2/15/2018, 23:11:59	47491	gltpfcv	zsmauto	Test For Janus 24	scheduled	Check In	Coverage	Ops
🕒	2/15/2018, 23:23:58	47488	gltpfcv	zsmauto	Test For Janus 21	scheduled	Check In	Coverage	Ops
🕒	2/15/2018, 23:35:57	47489	gltpfcv	zsmauto	Test For Janus 22	scheduled	Check In	Coverage	Ops
🕒	2/15/2018, 23:47:56	47490	gltpfcv	zsmauto	Test For Janus 23	scheduled	Check In	Coverage	Ops
🧑	2/15/2018, 23:59:55	47487	gltpfcv	zsmauto	Test For Janus 20	scheduled	Check In	Coverage	Ops

# Sample Process Flow

## ➤ Package Is Automatically Implemented through CRAS Connection

Janus Auto Loader										
🚩	2/15/2018, 16:19:58	47449	gltpfcv	zsmauto	Test For Janus 70	loading	✓	✓	✓	Baseline
✗	2/15/2018, 20:55:27	47473	gltpfcv	zsmauto	Test For Janus 114	reverted				
🚩	2/15/2018, 20:59:56	47469	gltpfcv	zsmauto	Test For Janus 110	reverted				
🕒	2/15/2018, 21:17:08	47499	gltpfcv	zsmauto	Test For Janus EMER RANDOM	scheduled	✓	✓	✓	Revert
✓	2/15/2018, 21:08:34	47503	gltpfcv	zsmauto	Test For Janus EMER RANDOM	loaded	✓	✓	✓	Fallback
🚩	2/15/2018, 21:25:42	47477	gltpfcv	zsmauto	Test For Janus 00	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:34:16	47478	gltpfcv	zsmauto	Test For Janus 01	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 02	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 03	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 04	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 05	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 06	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 07	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 08	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 09	scheduled	✓	✓	✓	Revert
🕒	2/15/2018, 21:42:50	47479	gltpfcv	zsmauto	Test For Janus 10	scheduled	✓	✓	✓	Revert

[21:08:35] [WARNING] SCM Package 47,503 Start Implementation has errors : gltpfcv zsmauto Test For Janus 03 scheduled ✓ ✓ ✓ Revert

[21:08:35] [INFO] SCM Package 47,503 Start Implementation Complete

[21:08:35] [INFO] [Package Handler] Package 47,503 Sent Command: Command{id=7305, order=3, entry=ZOLDR ACT Z0012345} With Response: ???\*C? AZOLDR ACT Z0012345?13??\*0?0???B?AJOLDR101GI 21.08.35 CELA - ACTIVATE REQUEST RECEIVE

[21:08:35] [INFO] [TPF Connection] Sending message: ZRCRS ZSCM0001I PACKAGE 0047503 LOAD COMPLETE

[21:08:36] [INFO] [Package Handler] Package 47,503 Sent Command: Command{id=7306, order=4, entry=ZRCRS ZSCM0001I PACKAGE 0047503 LOAD COMPLETE} With Response: ???\*A?C? AZRCRS ZSCM0001I PACKAGE 0047503 LOAD COMPLETE?13??\*0?0???H?

[21:08:36] [INFO] [Package Handler] Package Load Complete 47,503

[21:08:36] [INFO] Package 47,503 Initiated End Implementation

[21:08:36] [INFO] SCM Baseline initiated for package 47,503

[21:08:37] [WARNING] SCM Package 47,503 End Implementation has errors :

[21:08:37] [INFO] Package 47,503 End Implementation Complete

[21:08:51] [INFO] SCM Baseline completed for package 47,503

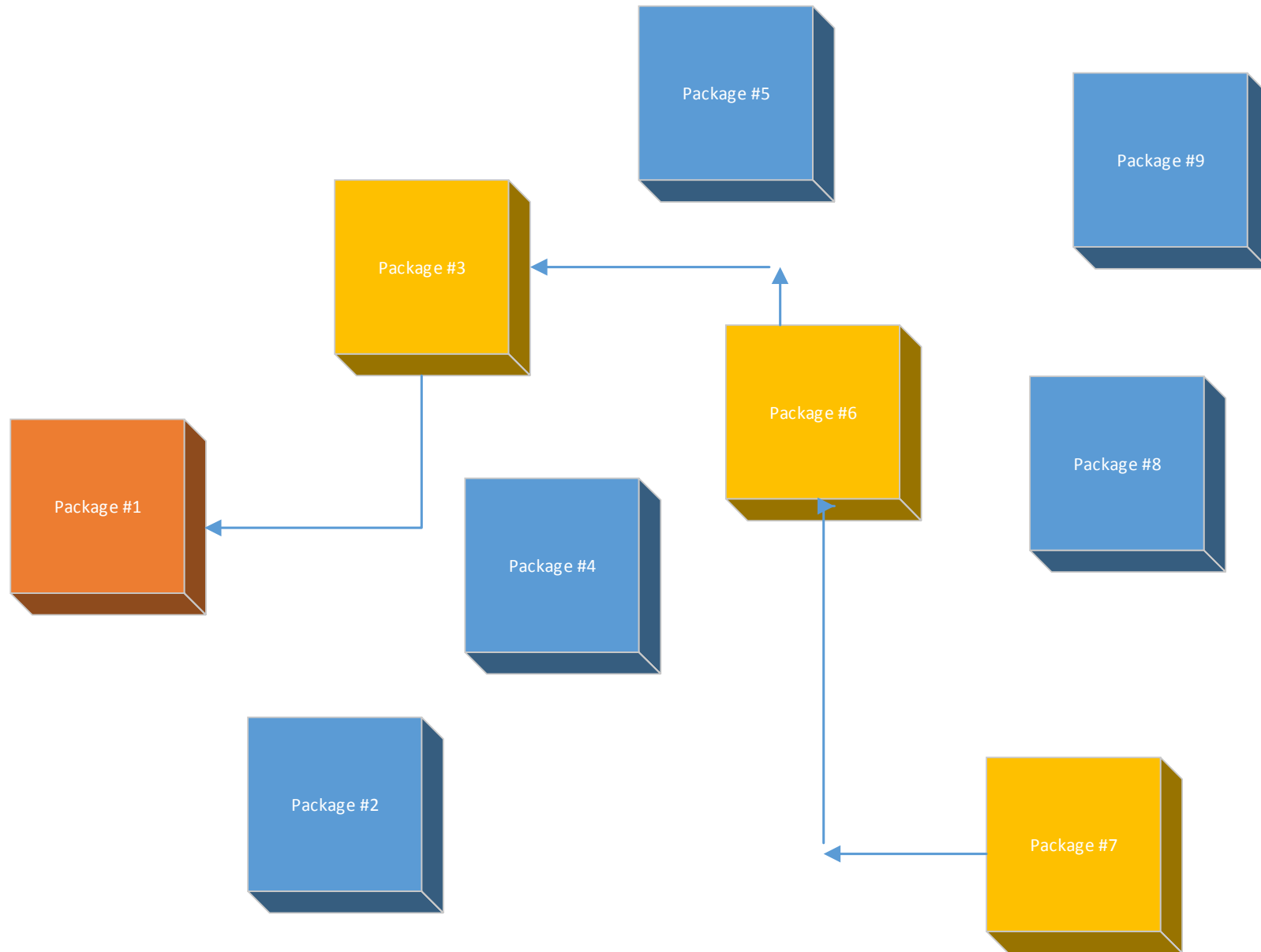
## Sample Process Flow

- Package Baseline Notification Is Sent To Source Control Manager
- After All Packages Are Loaded, Load Window Is Complete

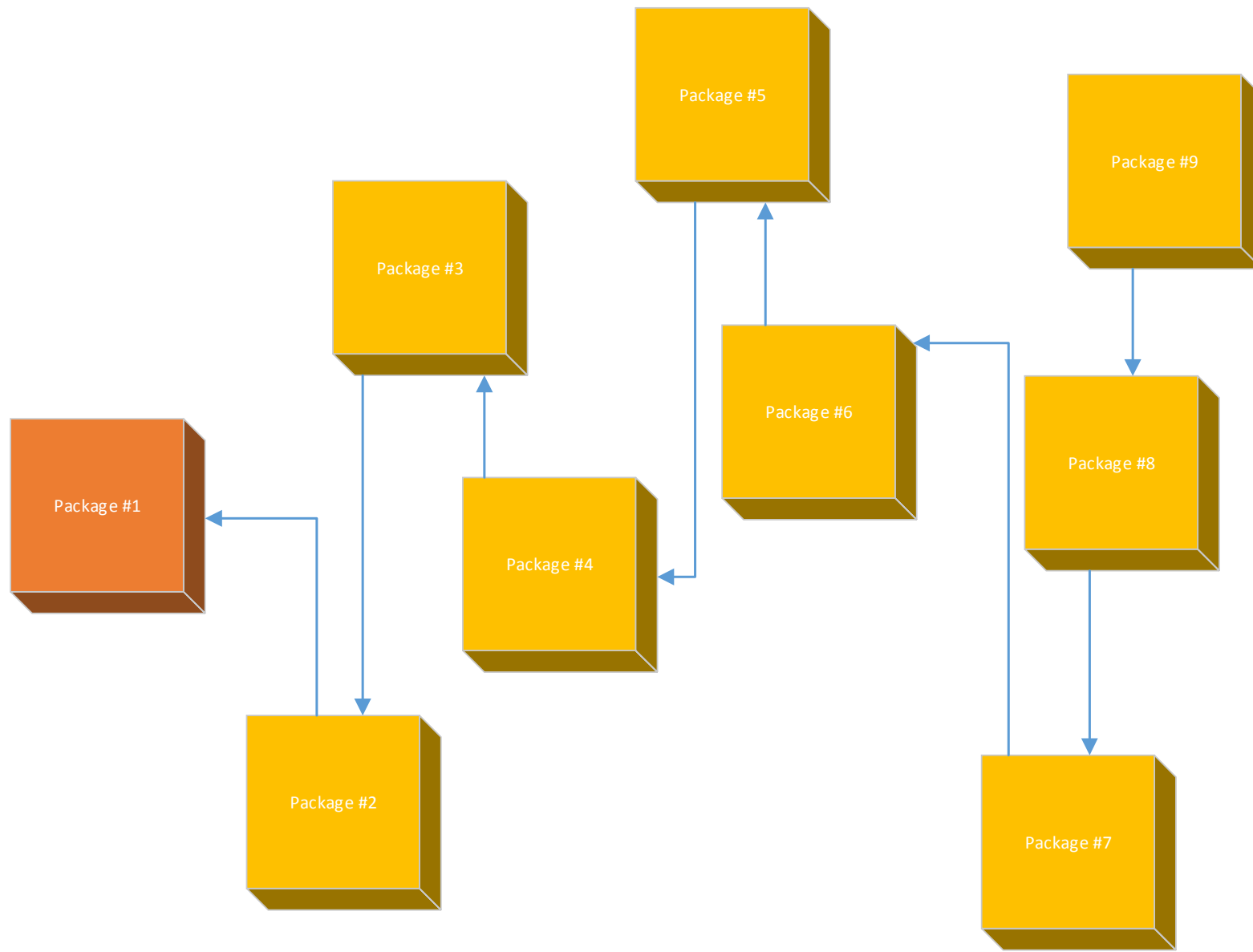
# Automated Fallback Explained

- Every dump is captured.
- Dual threshold for backing out the package.
- Streaming Dump Threshold
  - Fallback the last package loaded for every time the threshold is breached.
- Segment Dump Threshold tied to a package
  - If the same segment dumps and it can be tied to a package, fallback that targeted package.
- Last package targeted for fallback if blame cannot be placed.

# Targeted Segment Fallback








# Non-Targeted Streaming Dump Fallback





# Run Books

## Janus Auto Loader

4	Package 46662 Run Book	fallback	46662 Fallback Commands	janus		
5	Package 46663 Run Book	load	46663 Load Commands	janus		
6	Package 46663 Run Book	fallback	46663 Fallback Commands	janus		

### Execute Run Book Package 46665 Run Book?

Execute Book Package 46665 Run Book? This action cannot be undone!

Cancel Execute

Showing 1 to 10 of 1555 entries

< 1 2 3 4 ... >

- Janus operates using runbooks internally
- When a package is frozen it's load & fallback scripts will be converted to runbooks in Janus
- In addition to deployments, custom runbooks can be created for any custom scenario
  - Peak Crisis Books
  - Threshold Configuration Books
  - Job Books
- These custom books can be executed directly from Janus, again eliminating the need for, and time wasted finding and communicating entries from scripts for entry on CRAS.

# Post Validation Hooks

**Add New Validation Hook**

Package ID: 47656

End Point: http://casmepl1.aexp.com:8080

Limit: [dropdown]

Nothing to display

Test Save

The test button will send an HTTP GET to the base URL and port, which should return a 200 error code to be valid. At the time of package load, the entire URL will be called with an HTTP POST method containing the following body :

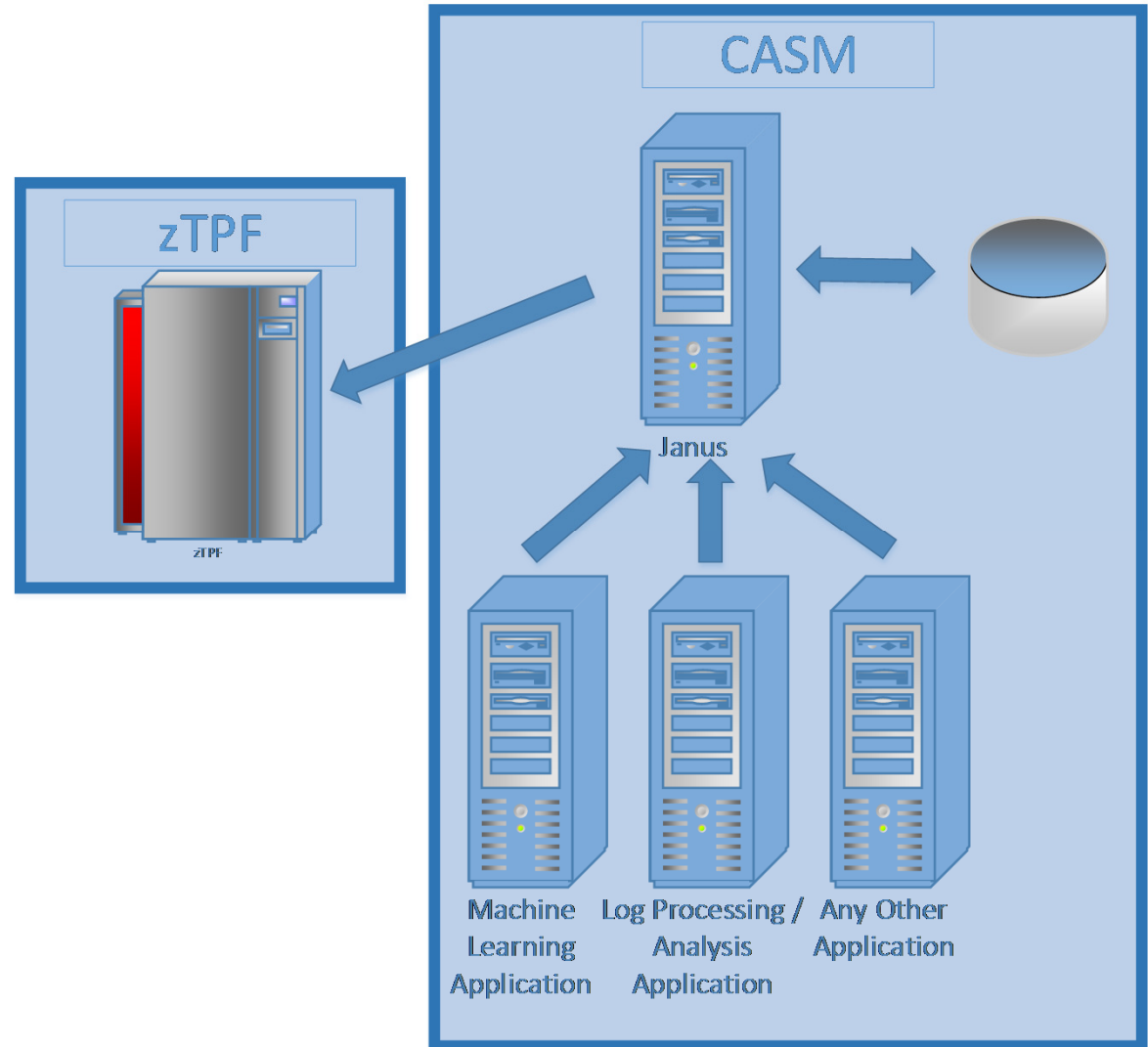
```
{
  "packageId": "Integer value of your package id.",
  "ts": "Long value of time in milliseconds at package load.",
  "issuedToken": "String value of issued token which must reply with any API ca
}
```

- Janus additionally features post-deploy validation hooks.
- At the moment a package is automatically deployed, Janus can be configured to send a POST to an endpoint with load notification
- Token System
- Take advantage of established data pipelines
- Closed loop validation systems

- Reduce impacts caused by bad changes
- Provide results to business instantly
- Remove human element from validation

# TPF CRAS RESTful Interface Explained

- Only trusted and whitelisted applications have access to perform entries.
- Facilitates modular automation to perform CAS entries.
- Reason for the entry displayed through ZRCRS command on the TPF console and logged internally.
- Secured via token system and hostname/IP whitelist.



# Q&A