

Build Pipelines

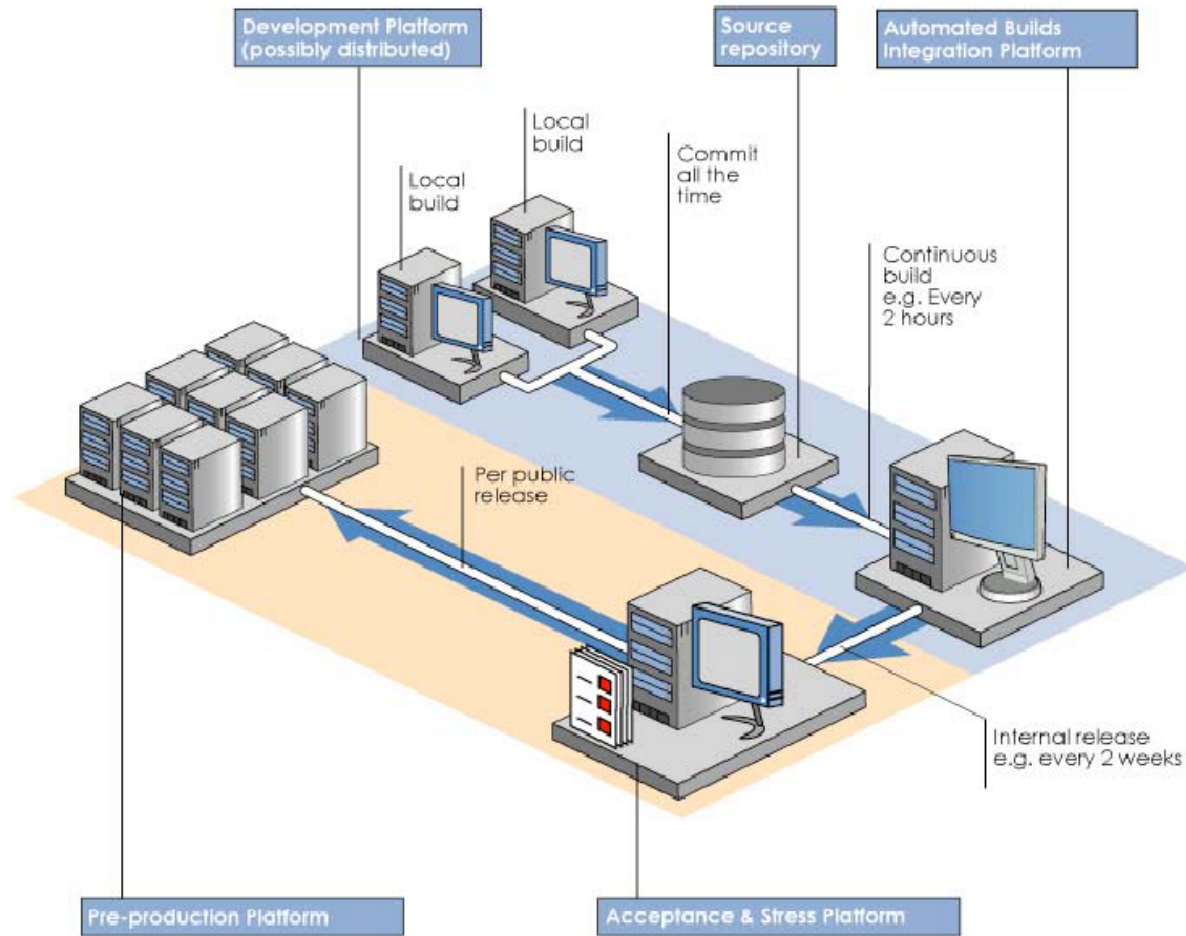
Quality through Repeatability

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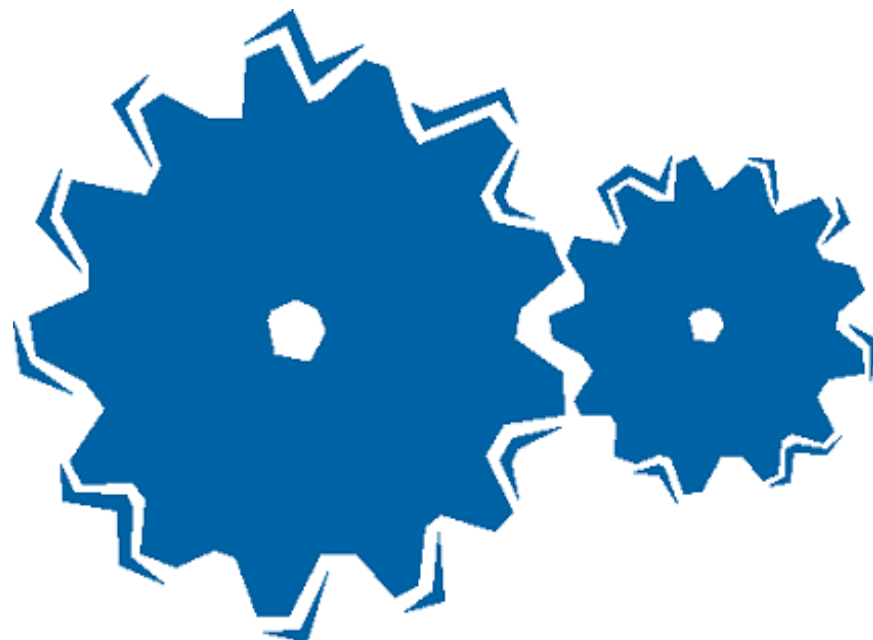


Quality through Repeatability: Enterprise Builds

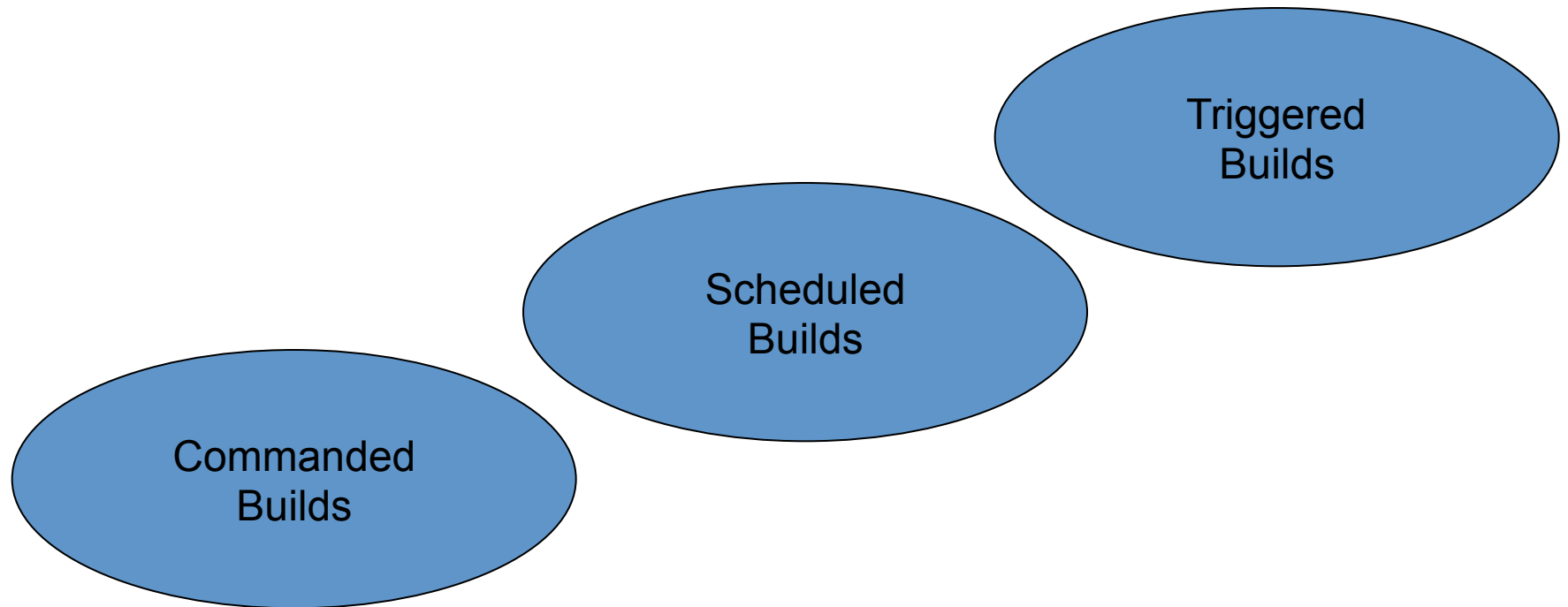


Build Automation

- Software Builds should be CRISP:
 - **C**omplete
 - **R**epeatable
 - **I**nformative
 - **S**chedulable
 - **P**ortable

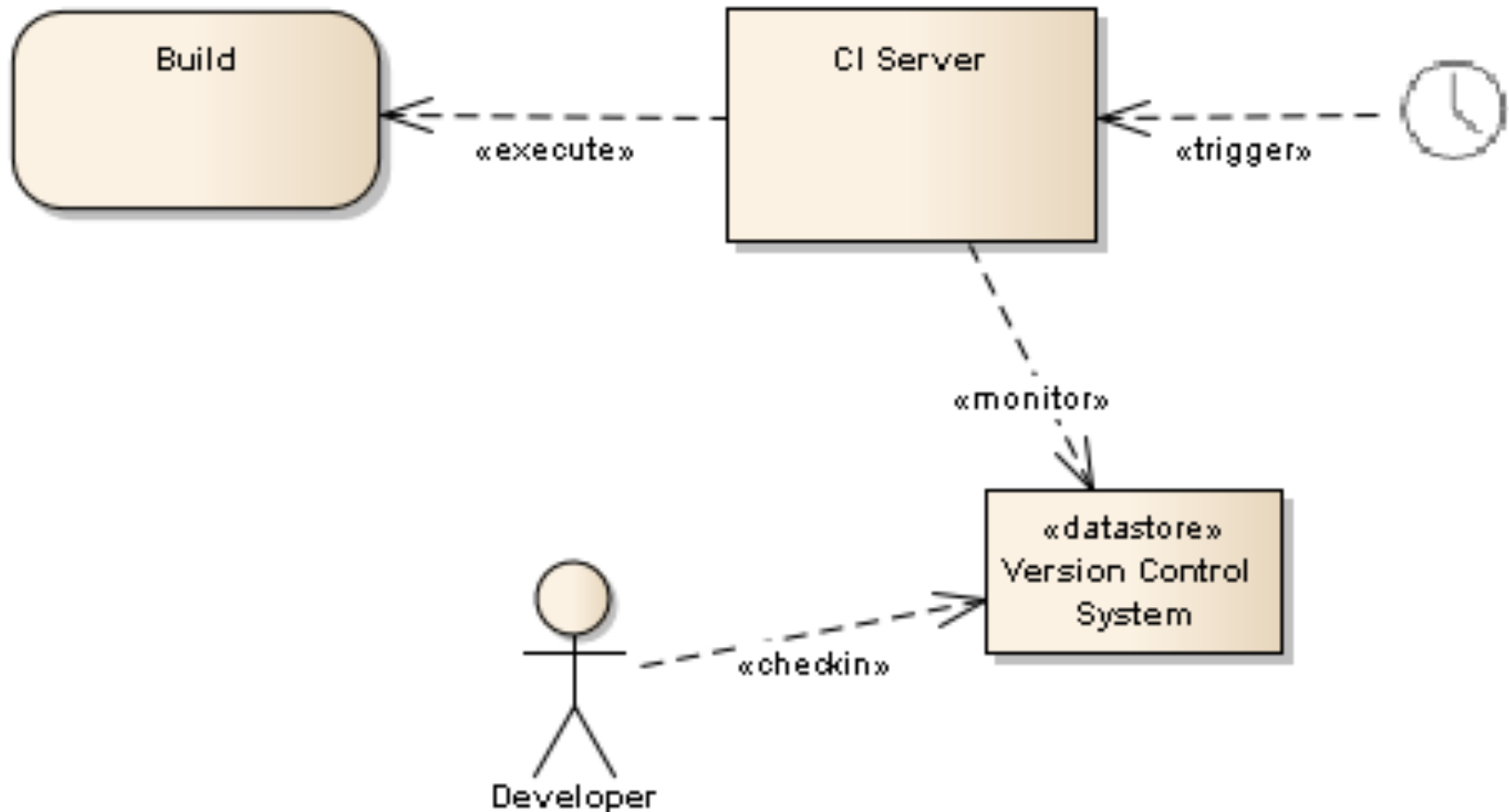


Levels of build automation

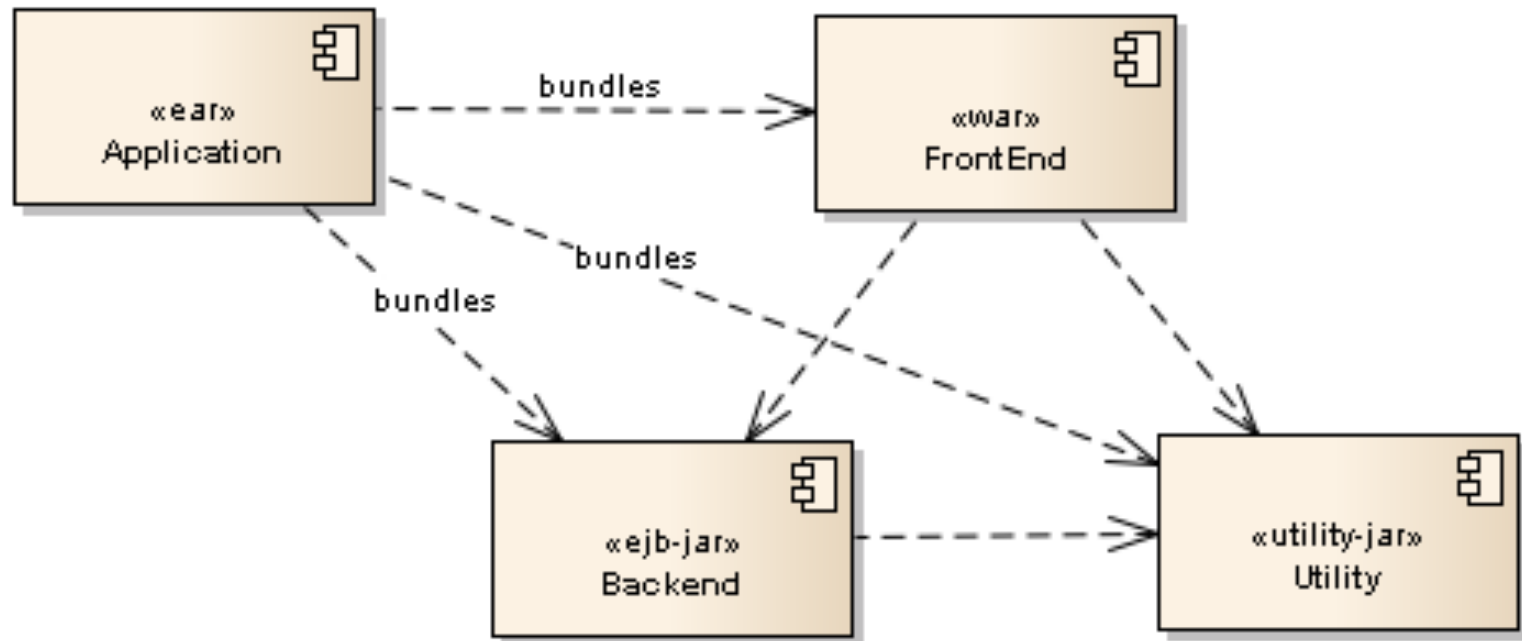


Continuous Integration Servers

Provides Scheduled and Triggered Builds on top of a Commanded build mechanism




Challenge: Modularity



Upstream/Downstream Projects

Crossdock-shared (Nightly) configuration

Build Triggers

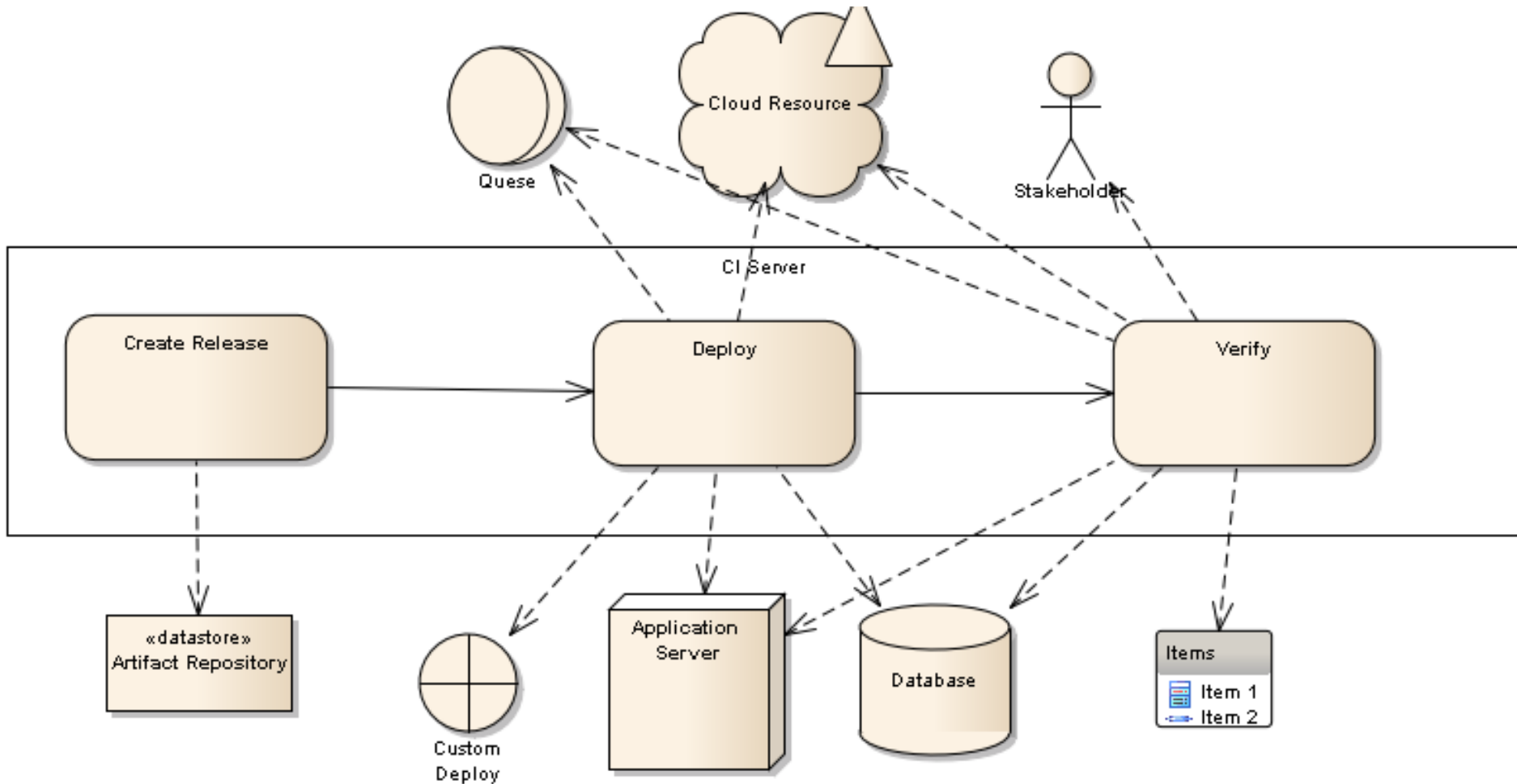
Build after other projects are built 

Projects names

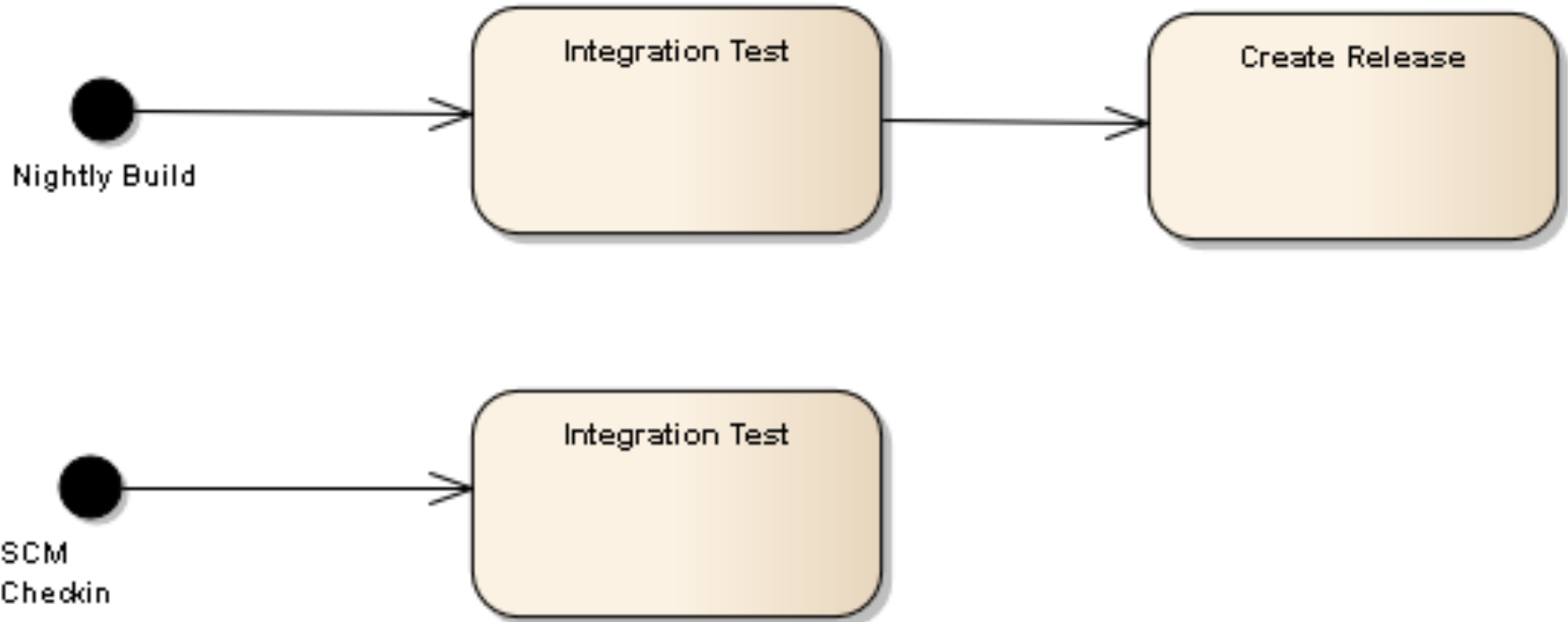
SiestaFramework (Nightly)

Multiple projects can be specified like 'abc, def'

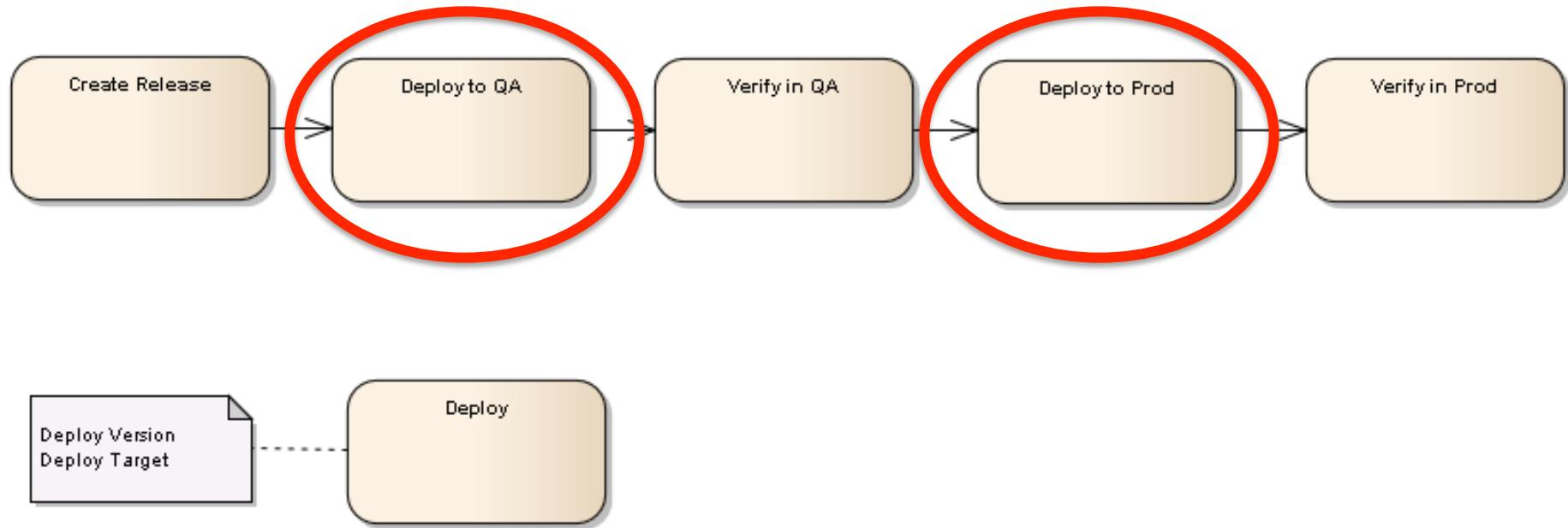
Challenge: External (servers, environments, ...)



Challenge: Autonomy & Cohesion



Challenge: Autonomy & Cohesion



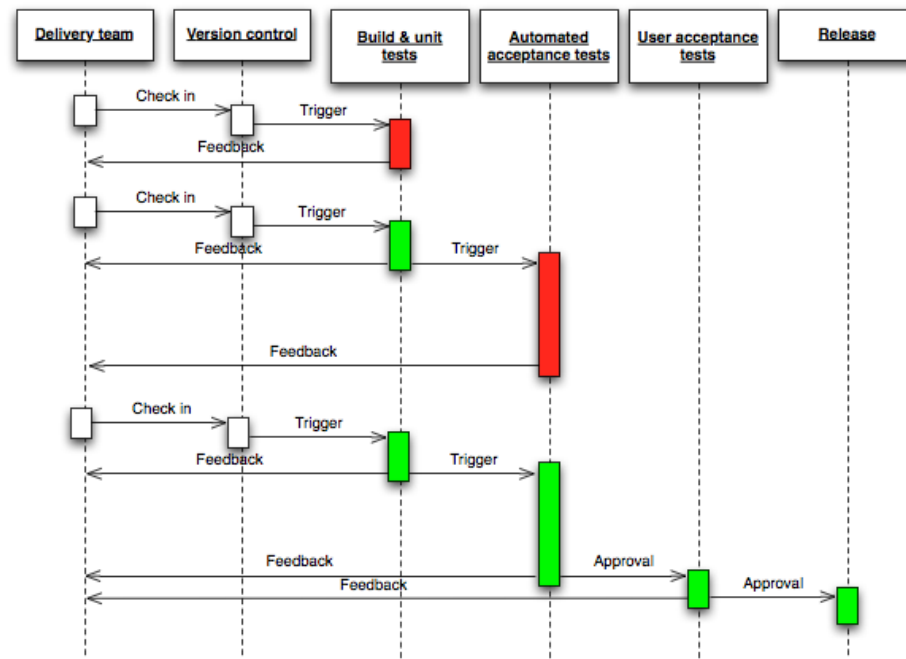
Build Pipelines



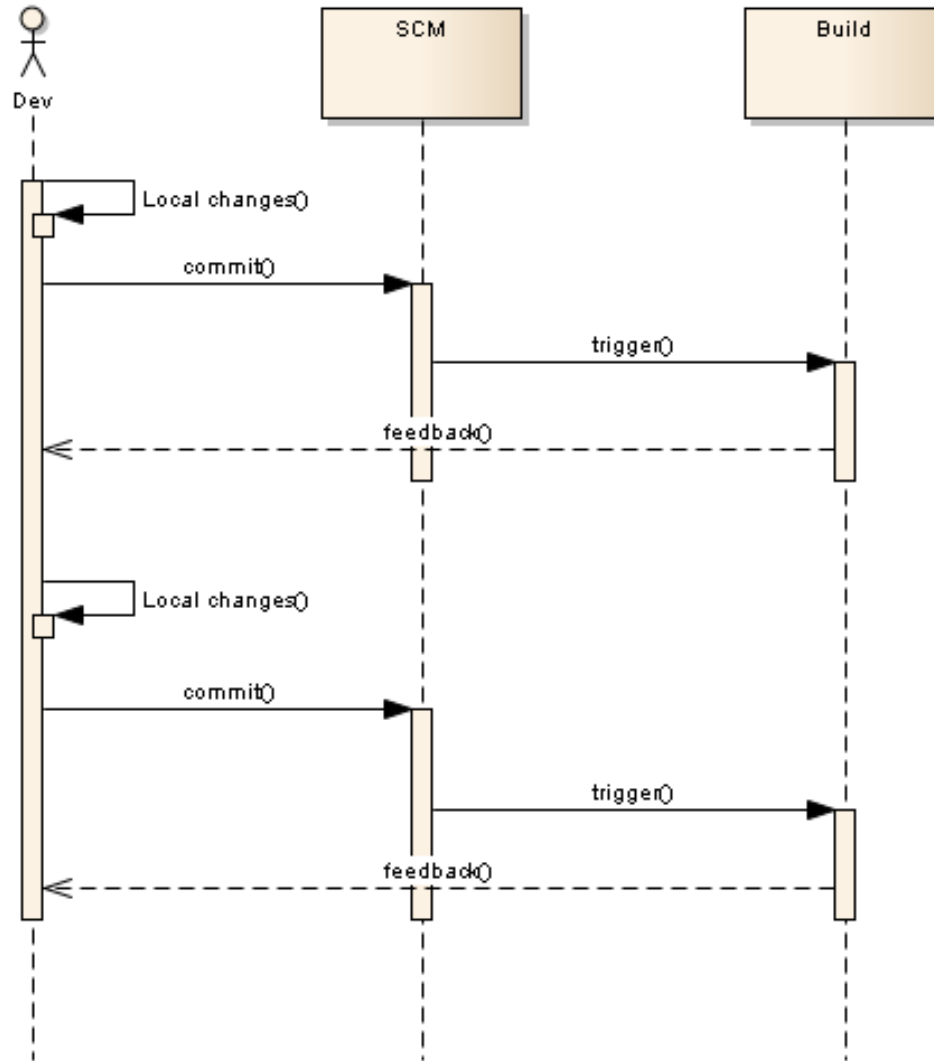
Photo by rickz

Build Pipelines

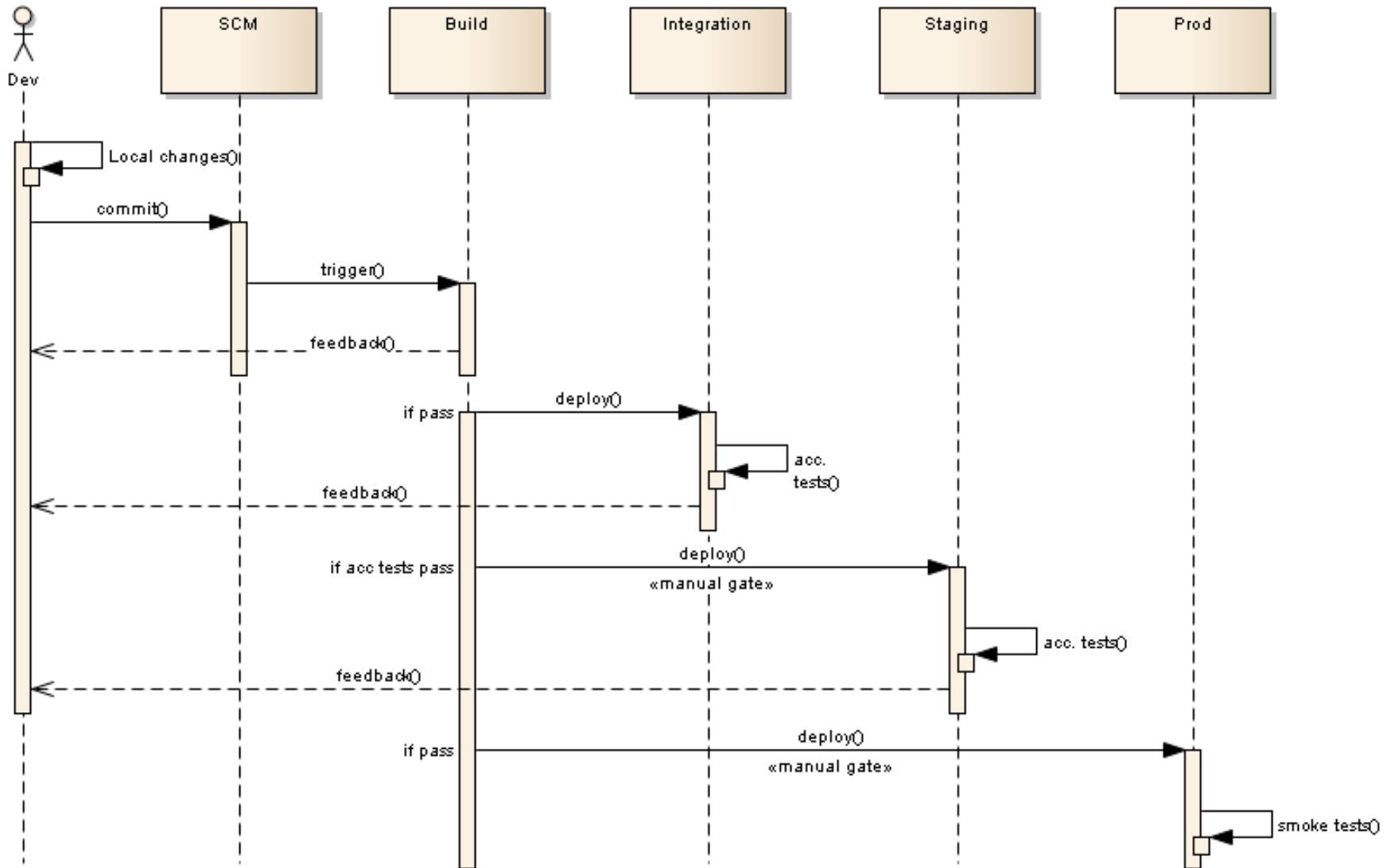
- Wikipedia: “a set of validations through which a piece of software must pass on its way to release”



Traditional CI scope



Build Pipelines scope



One-click Deploys



Photo by stevendepolo



Jenkins

- Open Source CI server
- Formerly known as Hudson
- Monitors execution of repeated jobs
 - Manually
 - Scheduled
 - On code change
 - Other Job
- Plugin Support



Plugin support for Build Pipelines

- Build Pipeline



- Build Flow



Build Pipeline

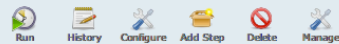
Jenkins

search

Jenkins > Release Pipeline

ENABLE AUTO REFRESH

Build Pipeline: Release Pipeline



Build Pipeline Support Plugins

Parameterized Trigger Plugin

☰ **Trigger parameterized build on other projects** ?

Build Triggers

Projects to build

Trigger when build is ?

Trigger build without parameters ?

☰ **Predefined parameters** ?

Parameters ?

▼


Projects to build


Trigger when build is ?

Trigger build without parameters ?


Build Pipeline Support Plugins

Conditional BuildStep Plugin


Conditional step (single) 

Run? 

Token

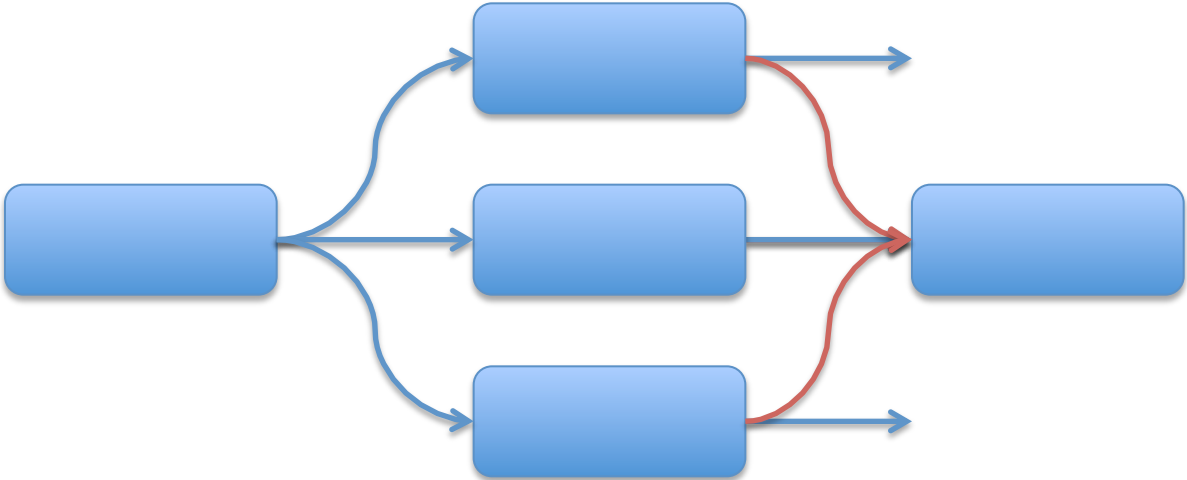
On evaluation failure 

Builder

Goals 

Build Pipeline Support Plugins

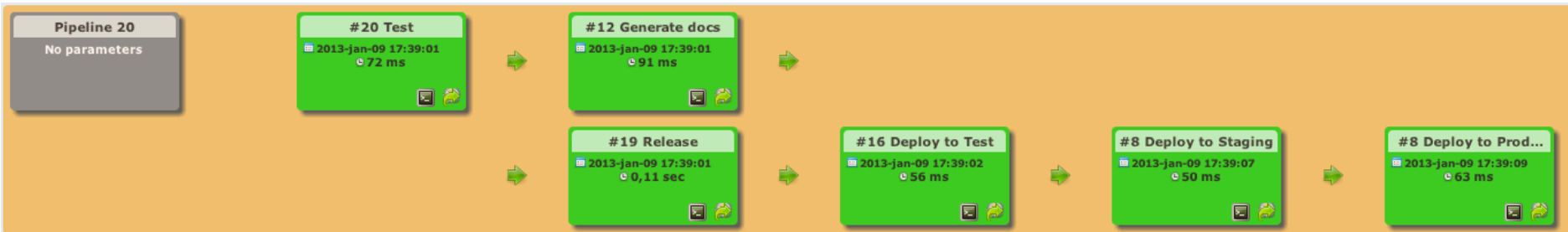
Join plugin



Build Pipeline Support Plugins

More Plugins

- Clone Workspace SCM Plugin
- Copy Artifact Plugin










Other Plugins

JobConfigHistory

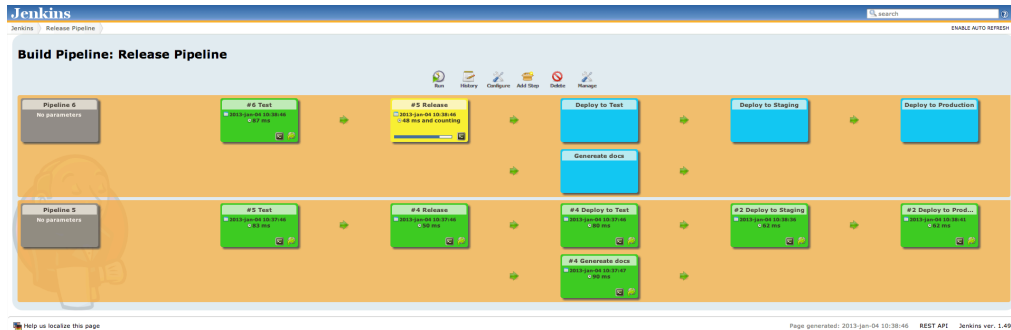
Job Configuration History

Test

Date ↓	Operation	User	Show File	Restore old config	Diff	
					File A	File B
2012-11-07_15-16-18	Changed	anonymous	 View as XML (RAW)		<input type="radio"/>	<input checked="" type="radio"/>
2012-11-07_15-16-16	Changed	anonymous	 View as XML (RAW)		<input checked="" type="radio"/>	<input type="radio"/>
2012-11-07_15-16-14	Changed	anonymous	 View as XML (RAW)		<input type="radio"/>	<input type="radio"/>
2012-11-07_15-16-10	Created	anonymous	 View as XML (RAW)		<input type="radio"/>	<input type="radio"/>

Plugin support for Build Pipelines

- Build Pipeline



- Build Flow



Build Flow

```
build("Test")  
build("Release")
```

```
b = build("Release")  
build("Deploy to Test", param: b.build.number)
```

```
build("Test")  
build("Release")  
parallel (  
    { build("Deploy to Test") },  
    { build("Generate docs") }  
)  
build("Deploy to Staging")  
build("Deploy to Production")
```



Build Flow

Jenkins > User Name > My Views > Todo > build-all-yy > #18

- [Back to Project](#)
- [Status](#)
- [Changes](#)
- [Console Output](#)
- [Edit Build Information](#)
- [Delete Build](#)
- [Previous Build](#)
- [Next Build](#)

Build #18

No changes.

Started by user [User Name](#)

```
graph TD; Start(( )) --> Compile[yy-compile #20]; Compile --> Javadoc[yy-javadoc #8]; Compile --> Sonar[yy-sonar #8];
```

Build Pipeline

+

- Bra visuell överblick
- Lätt att komma igång

- Hårt kopplade byggsteg -
Redundans

-

Build Flow

- Löst kopplade byggsteg
– återanvändbarhet
- DSL-konfiguration

- Saknar visuell
presentation
- Saknar stöd för
manuella steg

Case Study: www.papyrus.com

The screenshot shows the Papyrus website in a Windows Internet Explorer browser window. The address bar displays <http://www.papyrus.com/svSE/welcome.htm>. The browser's taskbar includes several open tabs: "Probe - Available D...", "Papyrus - buy coate...", "PSI-Probe - JAMWiki", "Service /atg/dynam...", and "Papyrus - buy c...".

The website header features the Papyrus logo and navigation links: "Sortiment", "Supporting you", "Registrering", and "Om oss". A search bar is located on the right side of the header.

On the left side, there is a "Logga in" section with input fields for "Användarnamn" and "Lösenord", a "Registrera dig som användare" link, and a "Logga in" button. Below this is a "Välkommen till Papyrus Sverige" section with a paragraph of text and a Facebook link to "Papyrus Supplies".

The main content area is divided into several sections:

- Nyheter**: A list of news items with dates and titles, including "2013-01-08 Systemunderhåll på e-services lördagen den 12 januari kl 16.00 - 21.00", "2012-12-17 Papyrus förvärvar Siisti-Piste Oy och blir den största aktören på den finska städmarknaden", and "2012-11-20 Grafisk Prislista, kapitel A, bestruket papper, uppdaterad 2012-11-20".
- PAPYRUS SUPPLIES**: A section with the text "Läs om varför vi som arbetar med förbrukningsvaror på Papyrus numera heter Papyrus Supplies. Och varför vi älskar måndagar." and a photo of a person.
- Balance®**: A section with the text "Helt vitt, återvunnet papper" and a photo of a person.
- Dummyshopen**: A section with the text "Råd, tips, pappers-prover & dummies." and a photo of a person.

The footer of the browser window shows "Klar" on the left and "Lokalt intranät | Skyddat läge: Av" and "105 %" on the right.

Build Pipeline: Update Branch

Pipeline to patch an existing branch

Pipeline 54

Major:	3
Patch:	3
Minor:	17
Name_of_branch:	3_17_ReleaseBranch



Pipeline 53

Major:	3
Patch:	2
Minor:	17
Name_of_branch:	3_17_ReleaseBranch



Effects:

- Total effort: **1 man week**
- Manual effort in packaging and deploying a release: **1 man day -> 5 minutes**
- Manual configuration and verification points (areas for potential errors) **+20 -> 1**
- ROI: **Almost instant**



Questions?

