Intracom Telecom
Java SE / EE Workshop

Introduction

WIRELESS NETWORK SYSTEMS – R&D – SSD

Agenda

Today:

- Introduction (15’)
- Software Development Methodologies (30’)
- **Break** (15’)
- Technical Challenges (15’)
- Hands-on (60’)

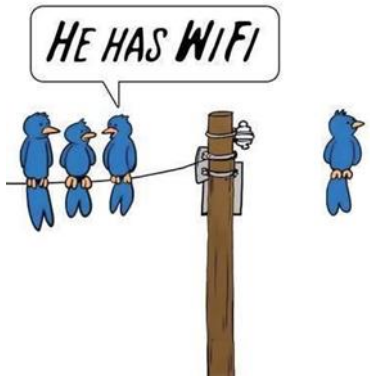
Tomorrow:

- Hands-on

Wireless Networks R&D

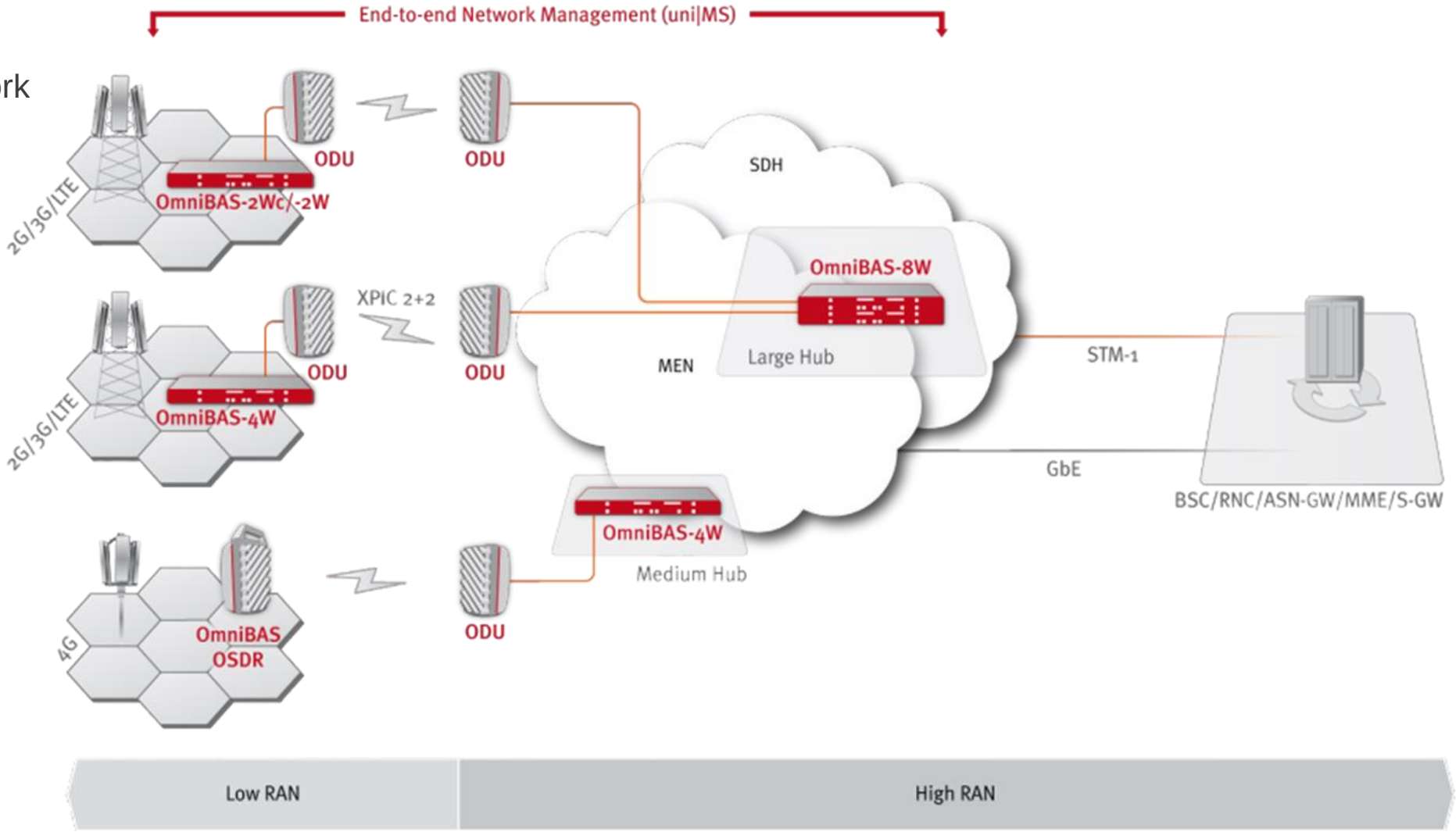
Software for in-house developed wireless systems

- Device software (embedded)
- Network Management software



Mobile Backhauling

- Connects RAN to Core Network
- Cost effective
- Easy and quick installation
- No licencing
- Affected by environment conditions



Local Management

telnet (CLI)

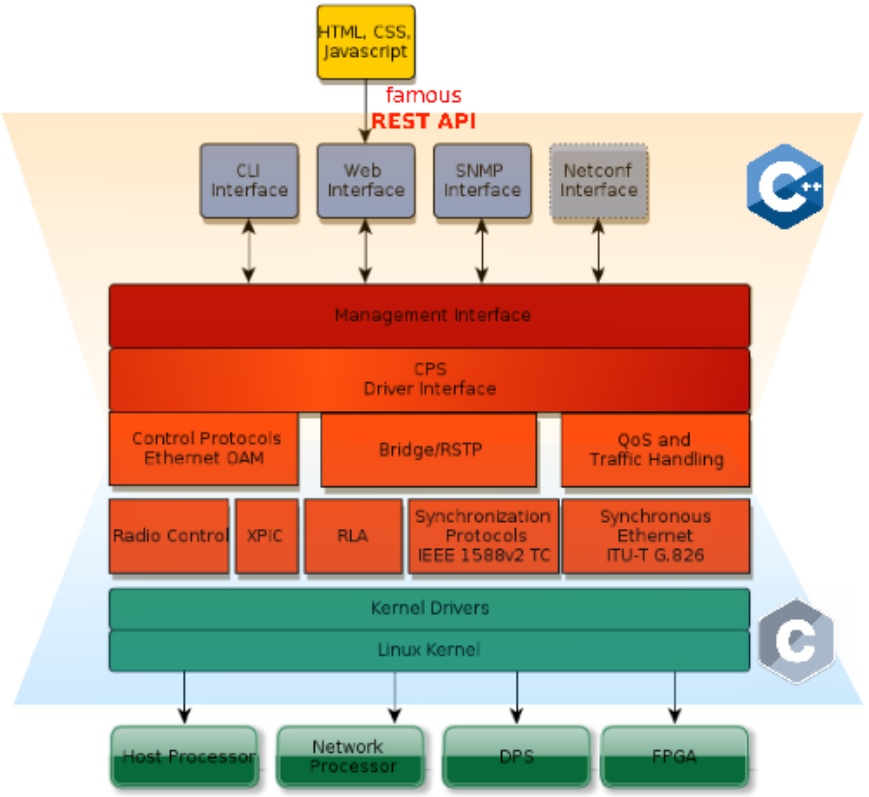
ssh (CLI)

http (WEB UI)

ftp

SNMP (MIBs, ASN.1)

NETCONF (YANG, XML)

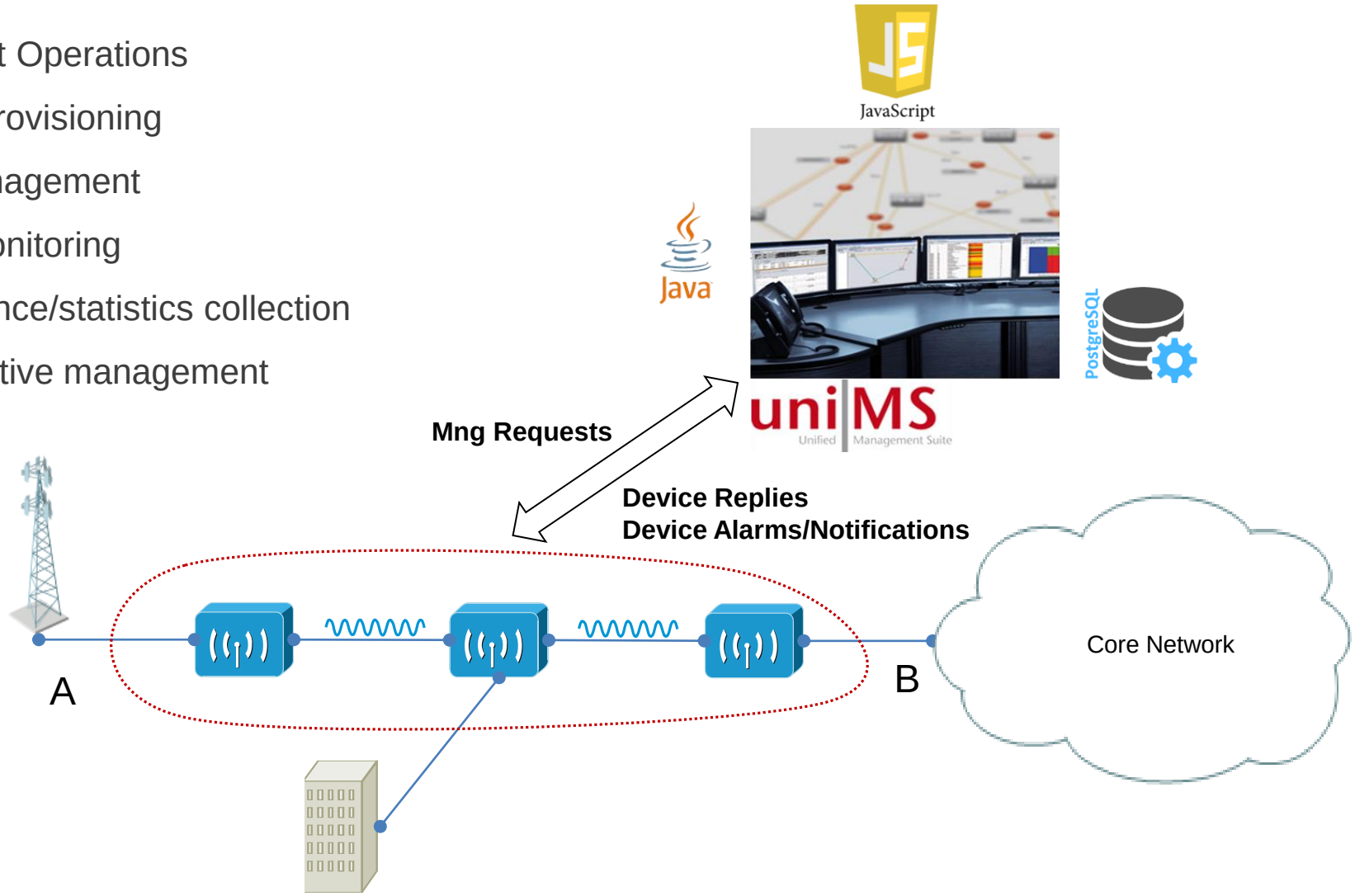


Network Management System Operations

Basic Management Operations

- Service provisioning
- Fault Management
- Status monitoring
- Performance/statistics collection

Reactive vs. Proactive management



Who uses Network Management SW?

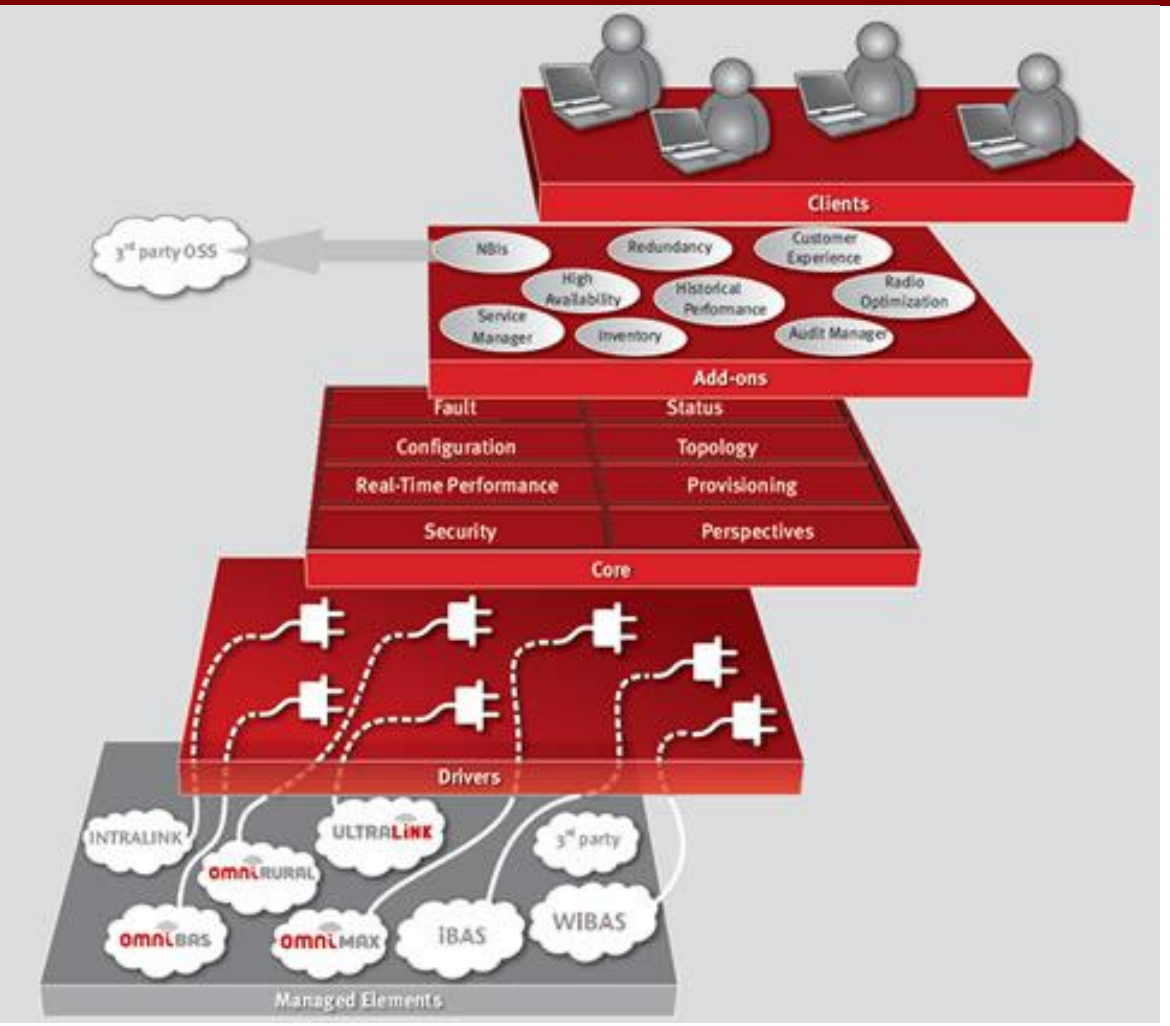
a. Equipment manufacturer (e.g. Intracom Telecom) installation personnel

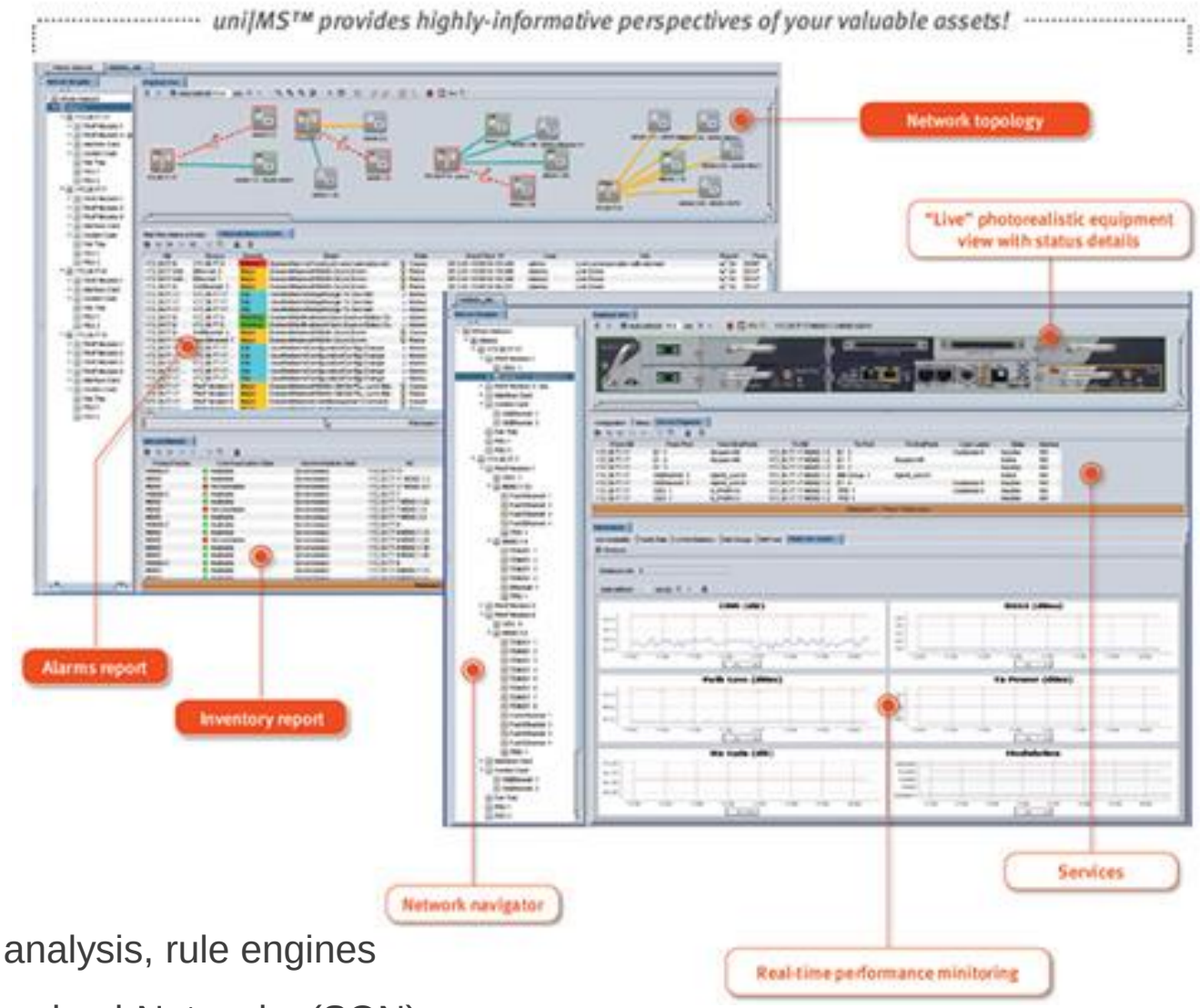
✓ b. Telecom Operator (e.g. Cosmote/Vodafone/Wind etc.) personnel

c. End-user customer

d. Government authorities

NMS functions



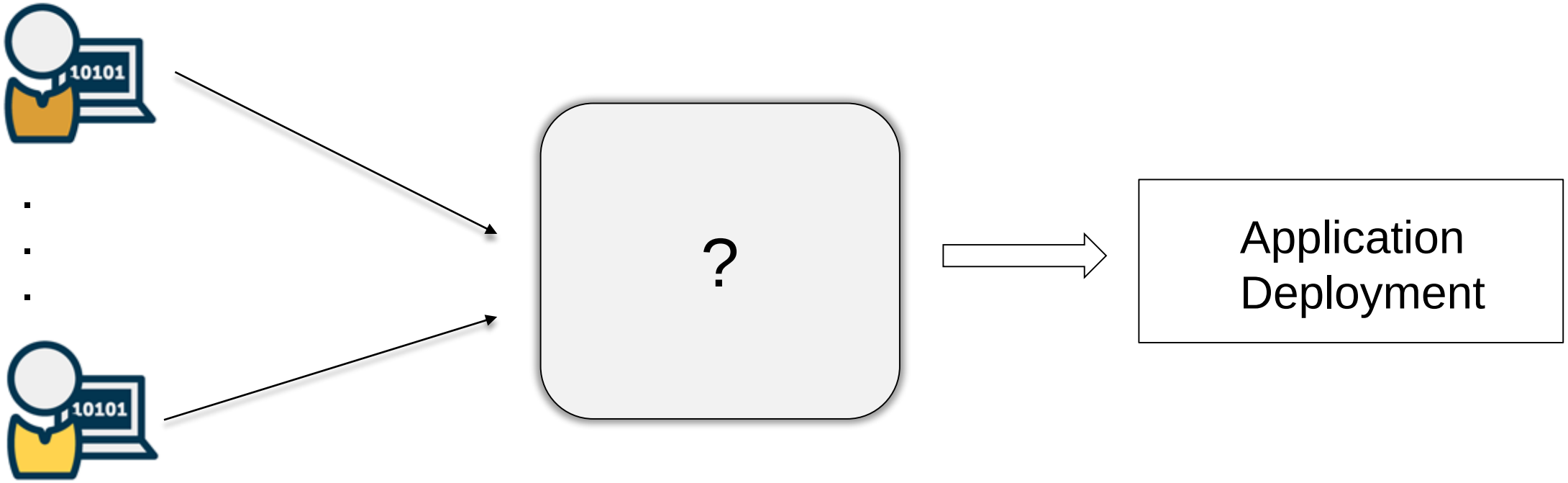


- Alarm correlation, root cause analysis, rule engines
- Network intelligence, Self-Organized-Networks (SON)

Future Trends

- New models, paradigm shifts in networking (SDN, NFV, 5G, IoT)
- Traditional distributed protocols model → centralized intelligence (move control plane)
- Influences from advances in Data Center / Cloud technologies
- Use of Analytics, Big Data
- AI, Machine Learning → intelligent traffic engineering
  communication with portals (news, weather etc.)
  e.g. wireless systems utilize weather conditions forecasting → reroute traffic
  or events with crowd → adapt bandwidth to conditions at the time of event

Software Engineering vs. Programming

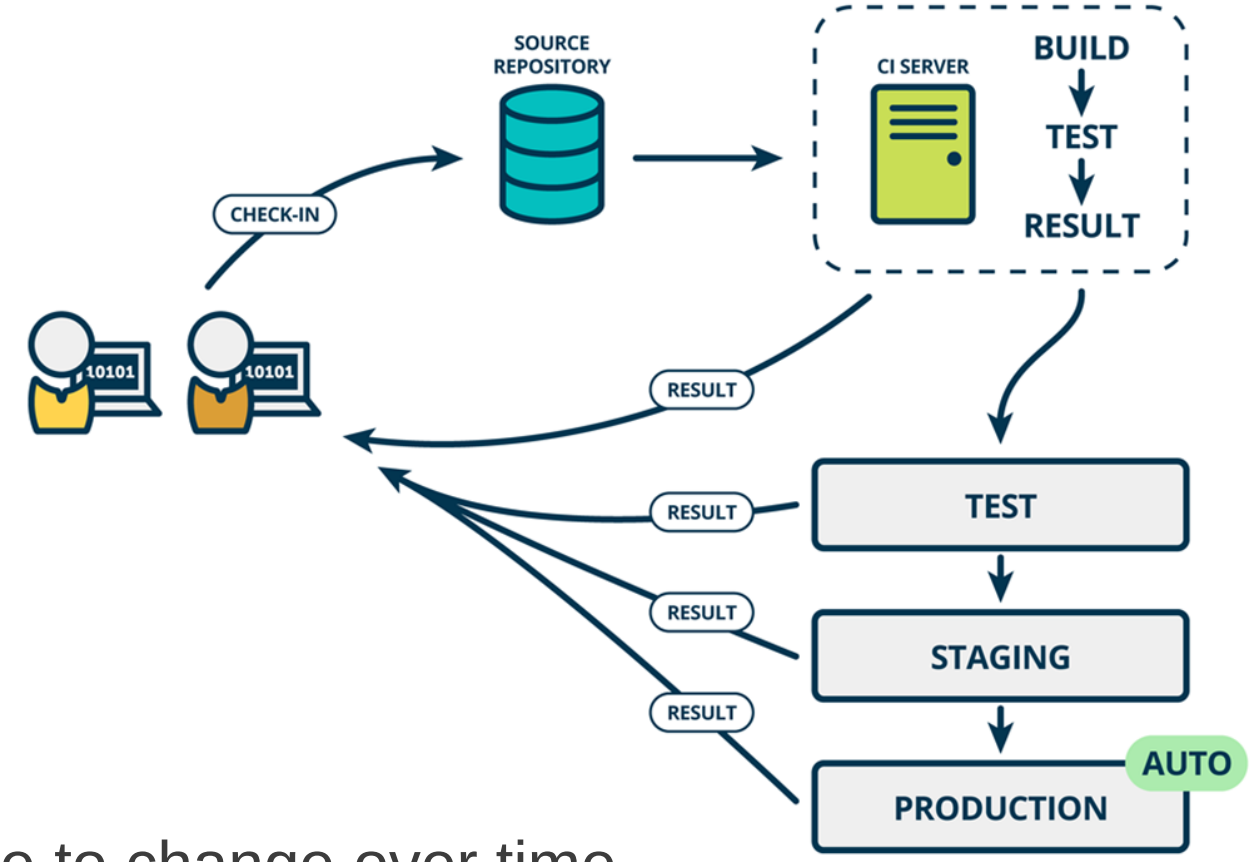

10101
10101
?
Application
Deployment

“Engineering is programming integrated over time.”

Titus Winters

Software Engineering is Resilience to Time

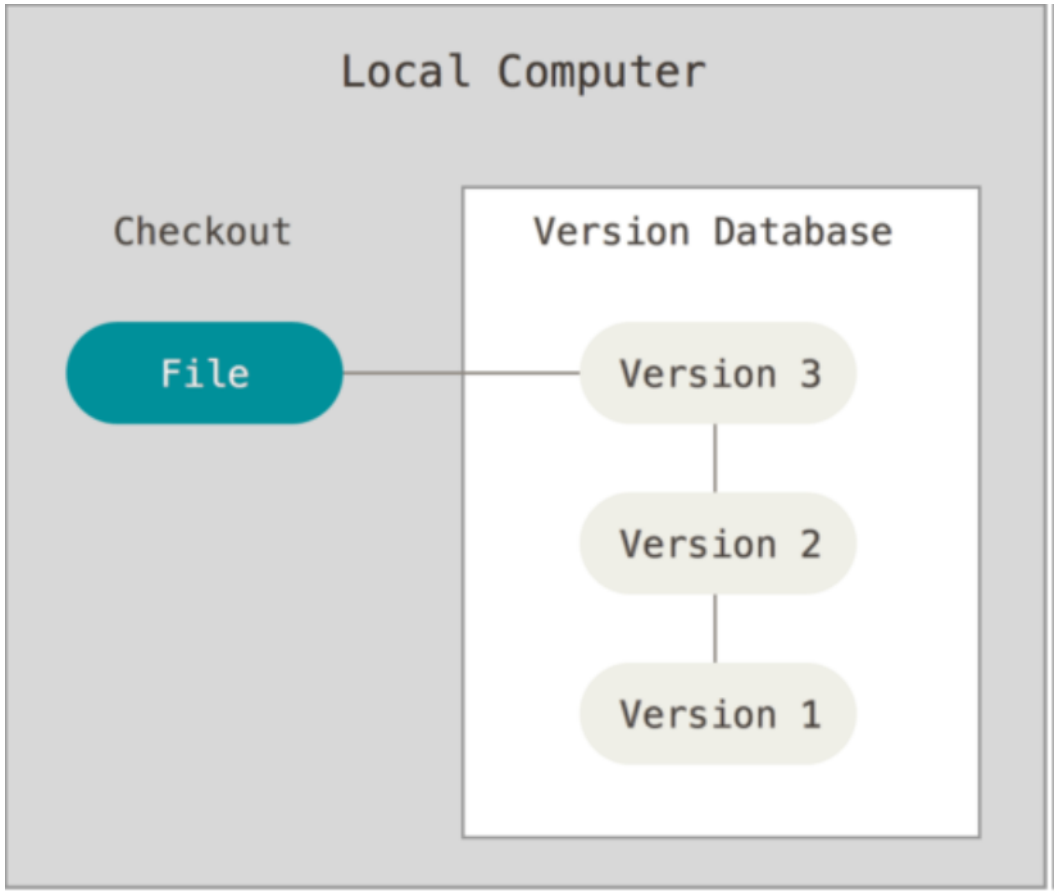
- Version Control Systems
- Continuous Integration
- Unit tests
- Refactoring tools
- Design Patterns
- Dependency management
- Issue tracking



Software engineering is about resilience to change over time.

What is version control?

- system that records changes to a file or set of files over time so that you can recall specific versions later
- can be centralized or distributed
- changes are usually identified by a number or letter code, termed the "revision number", "revision level", or simply "revision"
- benefits:
  - backup and restore
  - track changes
  - collaborate with team



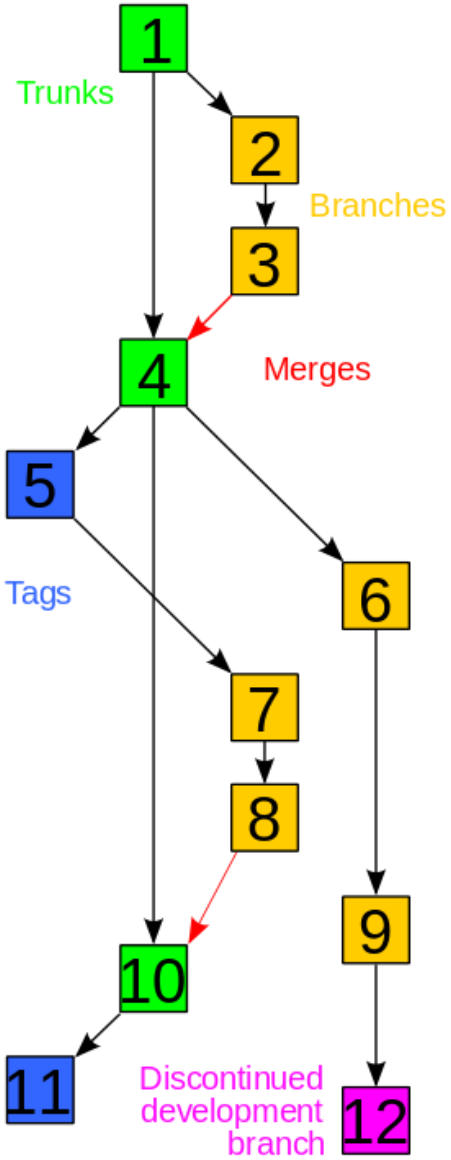
Version Control (Git vocabulary)

Main Concepts

- Repository
- Trunk or Mainline
- Branch
- Merge
- Tag

Main Actions

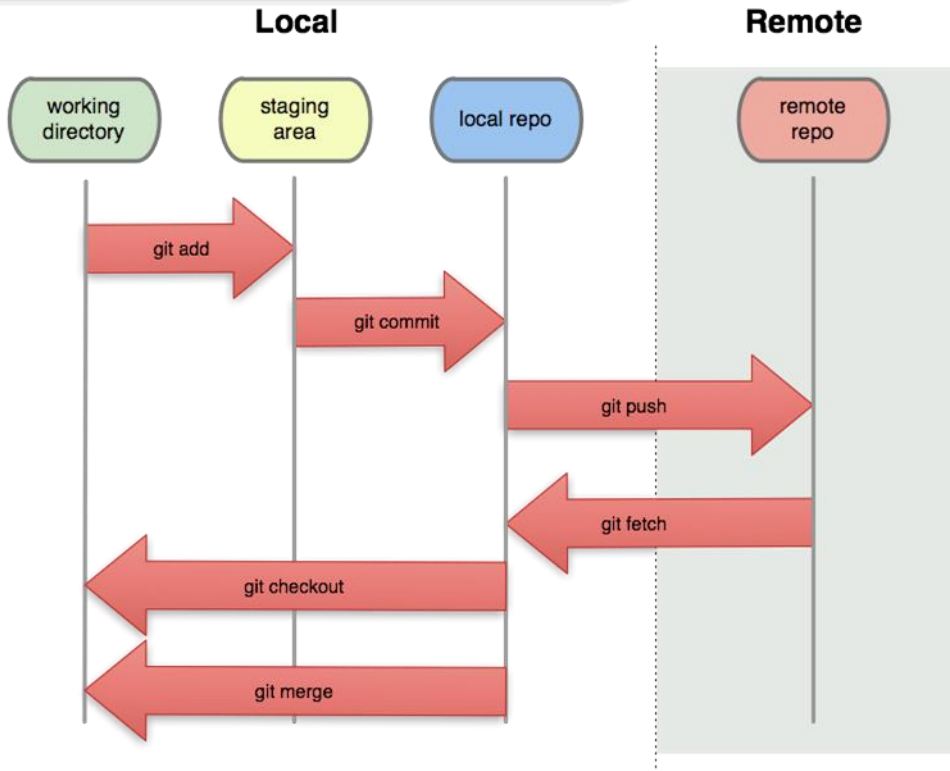
- Clone
- Add
- Commit - Check in
- Check out
- Update/Sync
- Revert
- Resolve Conflict



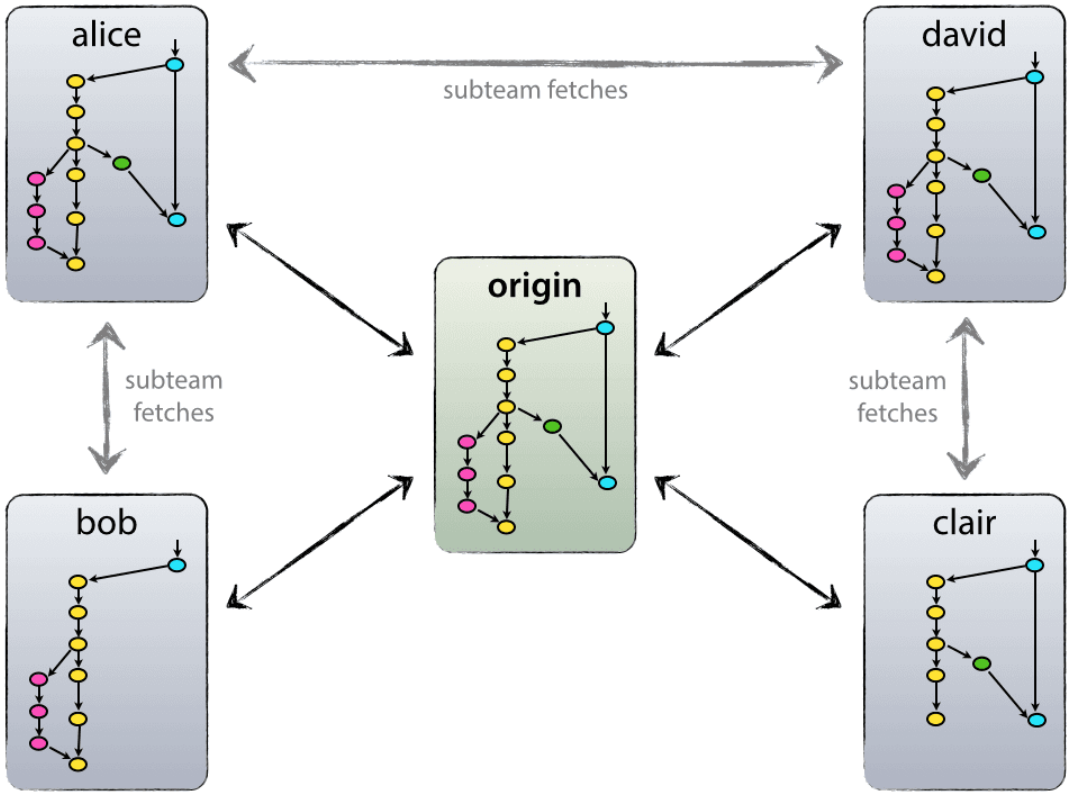
Version Control (Working areas)

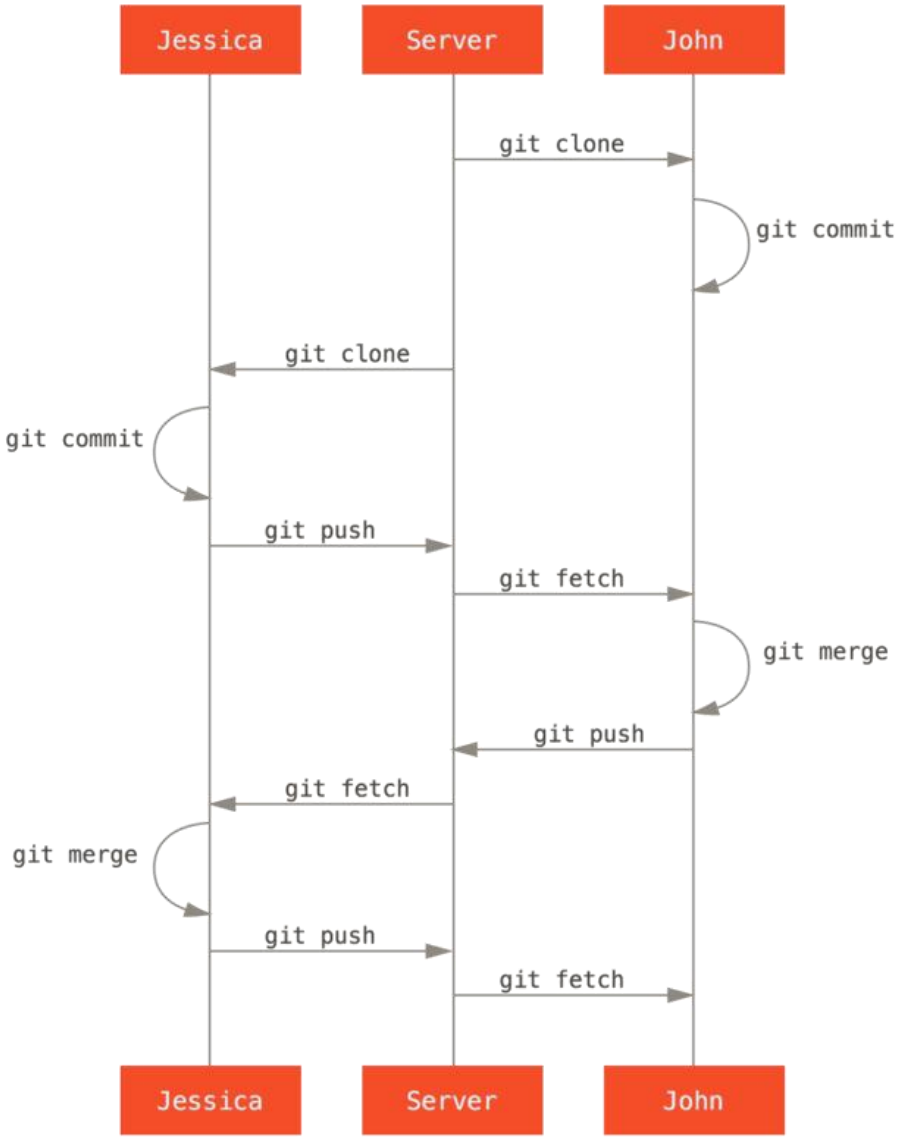
- fast, flexible, but challenging *distributed* version control system
- stream of snapshots (*commits* with SHA-1 hash ids)
- working directory, staging area, repository

```
# add to staging area
$ git add foo.txt

# commit staged files to repository
$ git commit -m "message"

# undo local (unstaged) changes
$ git checkout foo.txt

# unstage staged changes
$ git reset HEAD foo.txt

# show commit logs (history)
$ git log foo.txt
```

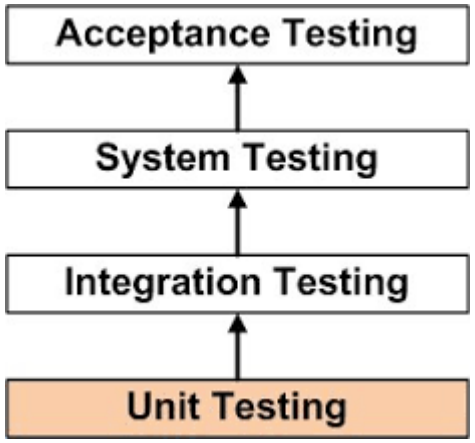


Version Control (Collaboration)

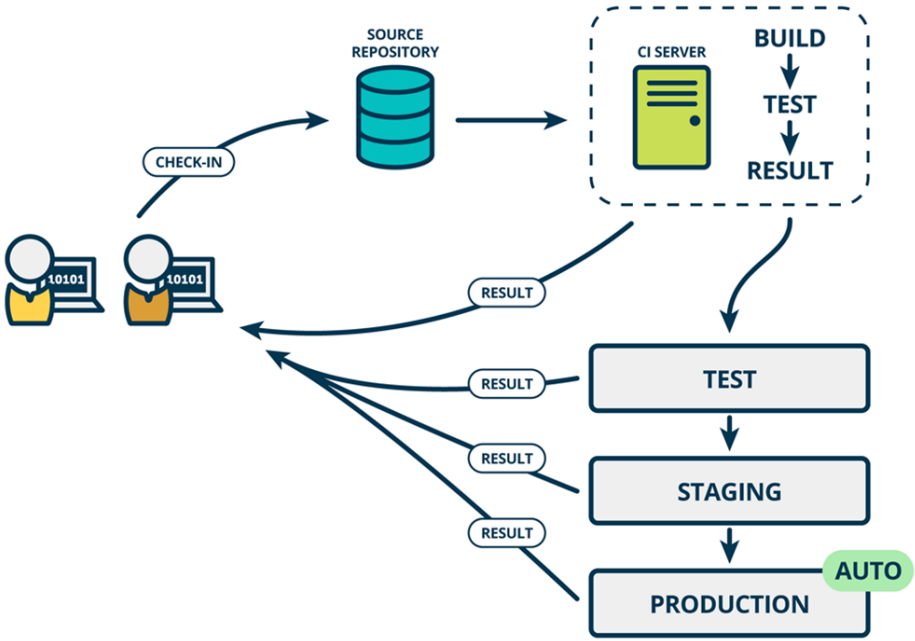


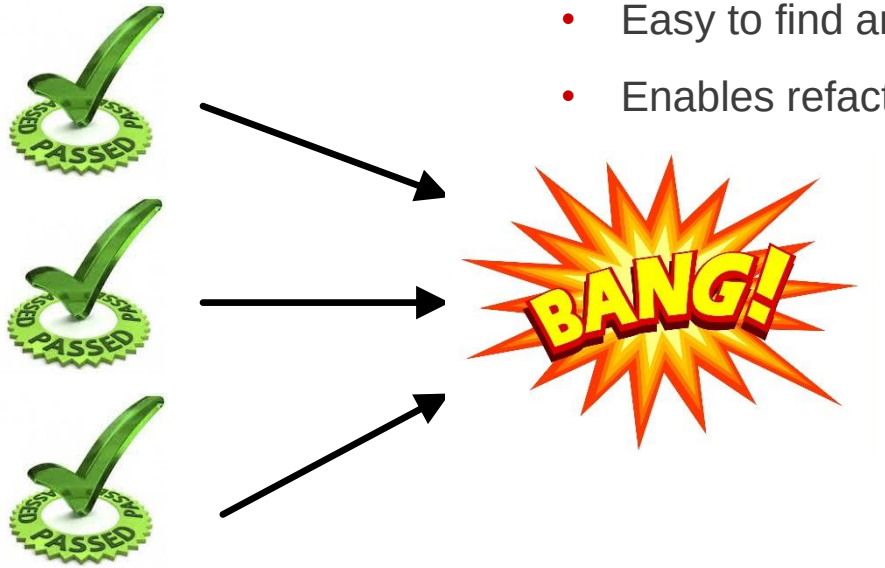


Continuous Integration

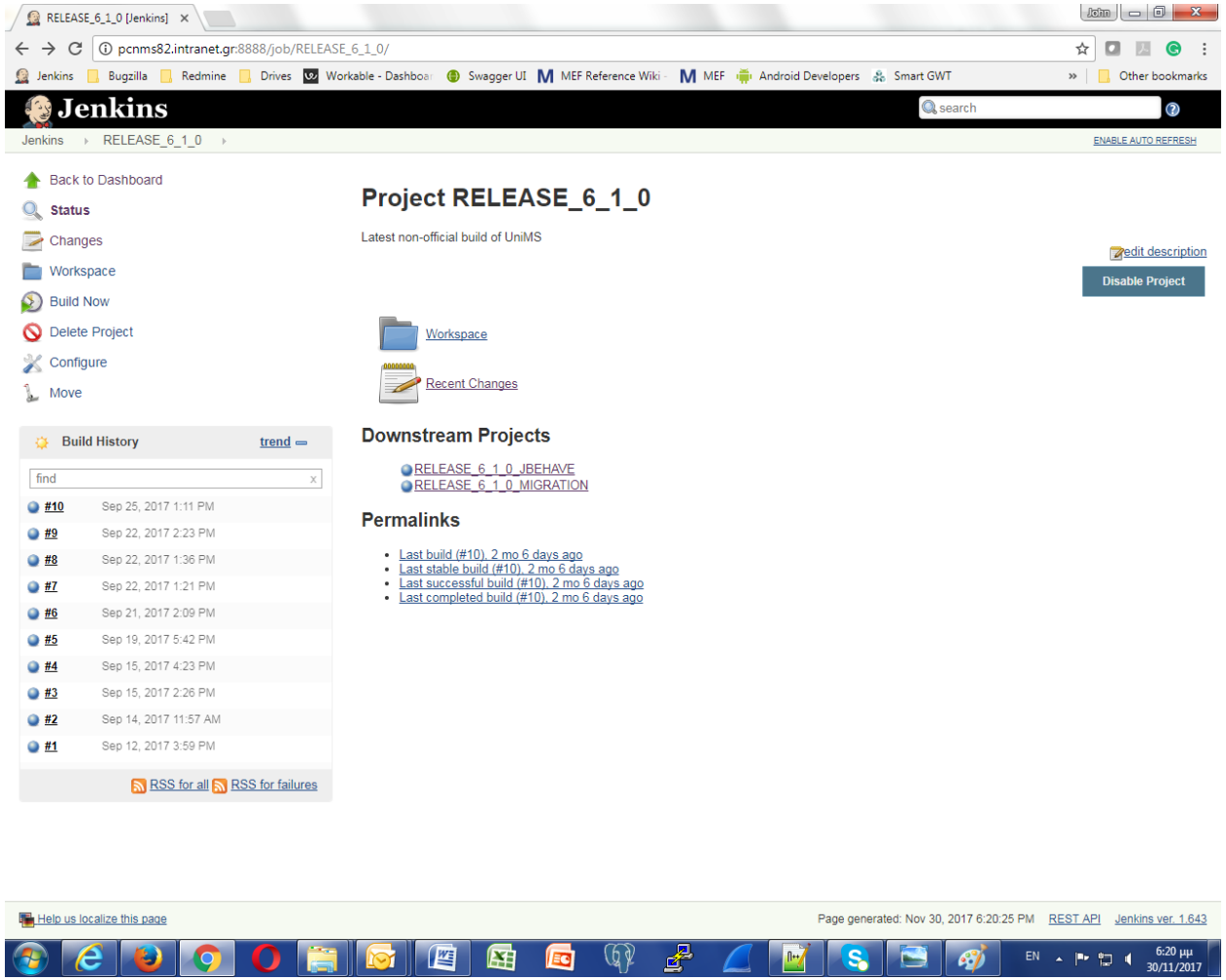


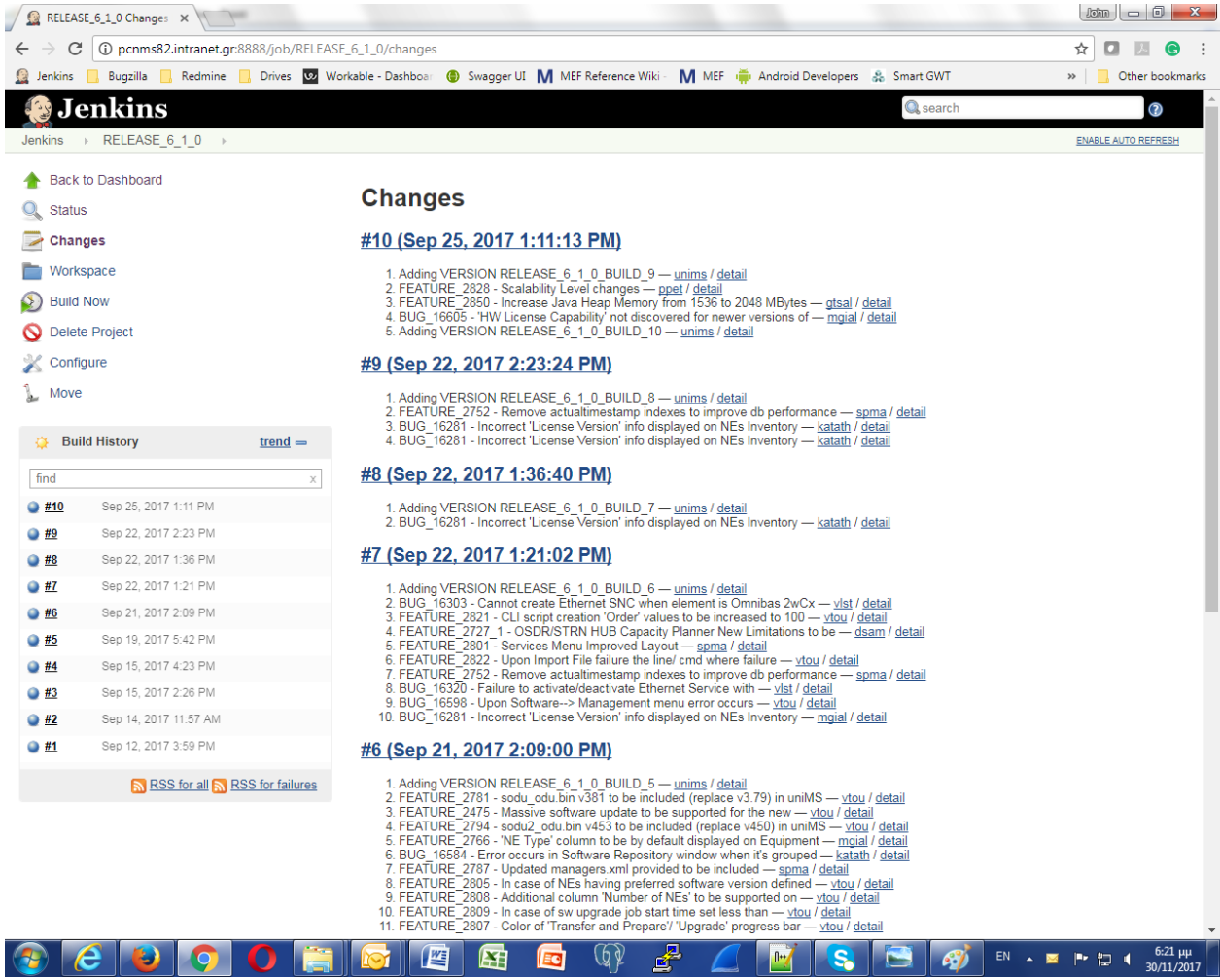
- CI is a practice not a tool
- Combines integration-build-testing in an automated way
- Visibility of code status for all
- SW is in a working state all the time
- Developers begin fresh work from a known good starting point
- Easy to find and fix bugs
- Enables refactoring





Jenkins


RELEASE_6_1_0 [Jenkins]
pcnms82.intranet.gr:8888/job/RELEASE_6_1_0/
Jenkins
search
Jenkins › RELEASE_6_1_0 ›
ENABLE AUTO REFRESH
Back to Dashboard
Status
Changes
Workspace
Build Now
Delete Project
Configure
Move
Project RELEASE_6_1_0
Latest non-official build of UniMS
edit description
Disable Project
Workspace
Recent Changes
Downstream Projects
RELEASE_6_1_0_JBEHAVE
RELEASE_6_1_0_MIGRATION
Permalinks
Last build (#10), 2 mo 6 days ago
Last stable build (#10), 2 mo 6 days ago
Last successful build (#10), 2 mo 6 days ago
Last completed build (#10), 2 mo 6 days ago
Build History
trend
find
#10 Sep 25, 2017 1:11 PM
#9 Sep 22, 2017 2:23 PM
#8 Sep 22, 2017 1:36 PM
#7 Sep 22, 2017 1:21 PM
#6 Sep 21, 2017 2:09 PM
#5 Sep 19, 2017 5:42 PM
#4 Sep 15, 2017 4:23 PM
#3 Sep 15, 2017 2:26 PM
#2 Sep 14, 2017 11:57 AM
#1 Sep 12, 2017 3:59 PM
RSS for all
RSS for failures
Help us localize this page
Page generated: Nov 30, 2017 6:20:25 PM
REST API
Jenkins ver. 1.643


RELEASE_6_1_0 Changes
pcnms82.intranet.gr:8888/job/RELEASE_6_1_0/changes
Jenkins
search
Jenkins › RELEASE_6_1_0 ›
ENABLE AUTO REFRESH
Back to Dashboard
Status
Changes
Workspace
Build Now
Delete Project
Configure
Move
Changes
#10 (Sep 25, 2017 1:11:13 PM)
1. Adding VERSION RELEASE_6_1_0_BUILD_9 — unims / detail
2. FEATURE_2828 - Scalability Level changes — ppet / detail
3. FEATURE_2850 - Increase Java Heap Memory from 1536 to 2048 MBytes — gtsal / detail
4. BUG_16605 - 'HW License Capability' not discovered for newer versions of — mgial / detail
5. Adding VERSION RELEASE_6_1_0_BUILD_10 — unims / detail
#9 (Sep 22, 2017 2:23:24 PM)
1. Adding VERSION RELEASE_6_1_0_BUILD_8 — unims / detail
2. FEATURE_2752 - Remove actualtimestamp indexes to improve db performance — spma / detail
3. BUG_16281 - Incorrect 'License Version' info displayed on NEs Inventory — katath / detail
4. BUG_16281 - Incorrect 'License Version' info displayed on NEs Inventory — katath / detail
#8 (Sep 22, 2017 1:36:40 PM)
1. Adding VERSION RELEASE_6_1_0_BUILD_7 — unims / detail
2. BUG_16281 - Incorrect 'License Version' info displayed on NEs Inventory — katath / detail
#7 (Sep 22, 2017 1:21:02 PM)
1. Adding VERSION RELEASE_6_1_0_BUILD_6 — unims / detail
2. BUG_16303 - Cannot create Ethernet SNC when element is Omnibas 2wCx — vlst / detail
3. FEATURE_2821 - CLI script creation 'Order' values to be increased to 100 — vtou / detail
4. FEATURE_2727_1 - OSDR/STRN HUB Capacity Planner New Limitations to be — dsam / detail
5. FEATURE_2801 - Services Menu Improved Layout — spma / detail
6. FEATURE_2822 - Upon Import File failure the line/ cmd where failure — vtou / detail
7. FEATURE_2752 - Remove actualtimestamp indexes to improve db performance — spma / detail
8. BUG_16320 - Failure to activate/deactivate Ethernet Service with — vlst / detail
9. BUG_16598 - Upon Software--> Management menu error occurs — vtou / detail
10. BUG_16281 - Incorrect 'License Version' info displayed on NEs Inventory — mgial / detail
#6 (Sep 21, 2017 2:09:00 PM)
1. Adding VERSION RELEASE_6_1_0_BUILD_5 — unims / detail
2. FEATURE_2781 - sodu_odu.bin v381 to be included (replace v3.79) in uniMS — vtou / detail
3. FEATURE_2475 - Massive software update to be supported for the new — vtou / detail
4. FEATURE_2794 - sodu2_odu.bin v453 to be included (replace v450) in uniMS — vtou / detail
5. FEATURE_2766 - 'NE Type' column to be by default displayed on Equipment — mgial / detail
6. BUG_16584 - Error occurs in Software Repository window when it's grouped — katath / detail
7. FEATURE_2787 - Updated managers.xml provided to be included — spma / detail
8. FEATURE_2805 - In case of NEs having preferred software version defined — vtou / detail
9. FEATURE_2808 - Additional column 'Number of NEs' to be supported on — vtou / detail
10. FEATURE_2809 - In case of sw upgrade job start time set less than — vtou / detail
11. FEATURE_2807 - Color of 'Transfer and Prepare'/ 'Upgrade' progress bar — vtou / detail
Build History
trend
find
#10 Sep 25, 2017 1:11 PM
#9 Sep 22, 2017 2:23 PM
#8 Sep 22, 2017 1:36 PM
#7 Sep 22, 2017 1:21 PM
#6 Sep 21, 2017 2:09 PM
#5 Sep 19, 2017 5:42 PM
#4 Sep 15, 2017 4:23 PM
#3 Sep 15, 2017 2:26 PM
#2 Sep 14, 2017 11:57 AM
#1 Sep 12, 2017 3:59 PM
RSS for all
RSS for failures

Questions & Answers

thank you

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