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# JBoss Enterprise Application Platform at Intuit

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# Introduction to Intuit

Intuit Inc. is a leading provider of business and financial management solutions for small and mid-sized businesses; financial institutions, including banks and credit unions; consumers and accounting professionals. Our flagship products and services, including QuickBooks, Quicken and TurboTax software, simplify small business management and payroll processing, personal finance, and tax preparation and filing.

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# **JBoss at Intuit?**

**Doesn't Intuit just build desktop software like TurboTax and QuickBooks?**

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# Not Anymore!

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# Intuit Software Background

Back in 2002, most developers were relatively new to Java & server side development.

Older online applications were built before application servers such as JBoss were widely available

Company-wide shift to web-based applications and services in last two years. As a result...

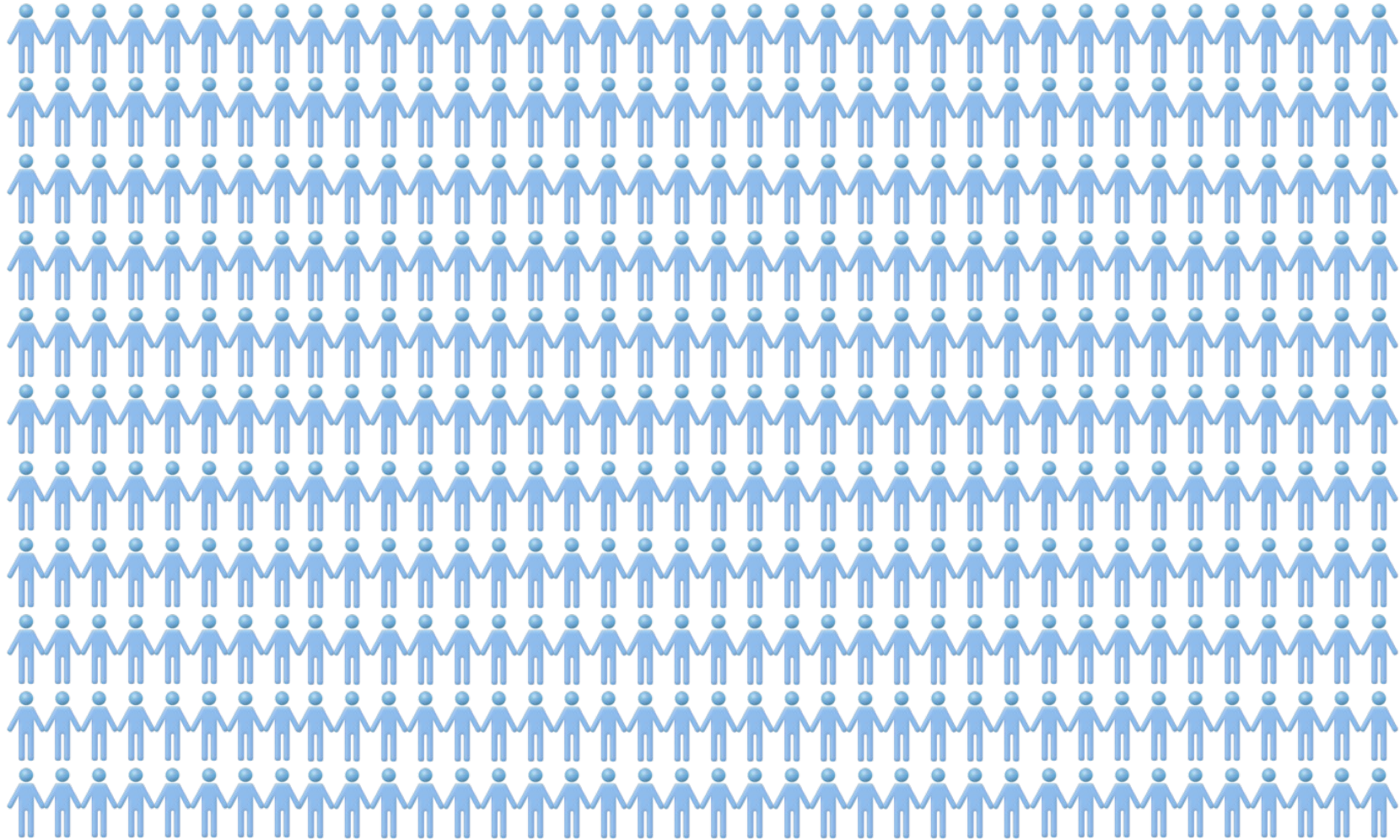
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# Of the 20M who prepared their taxes using TurboTax..



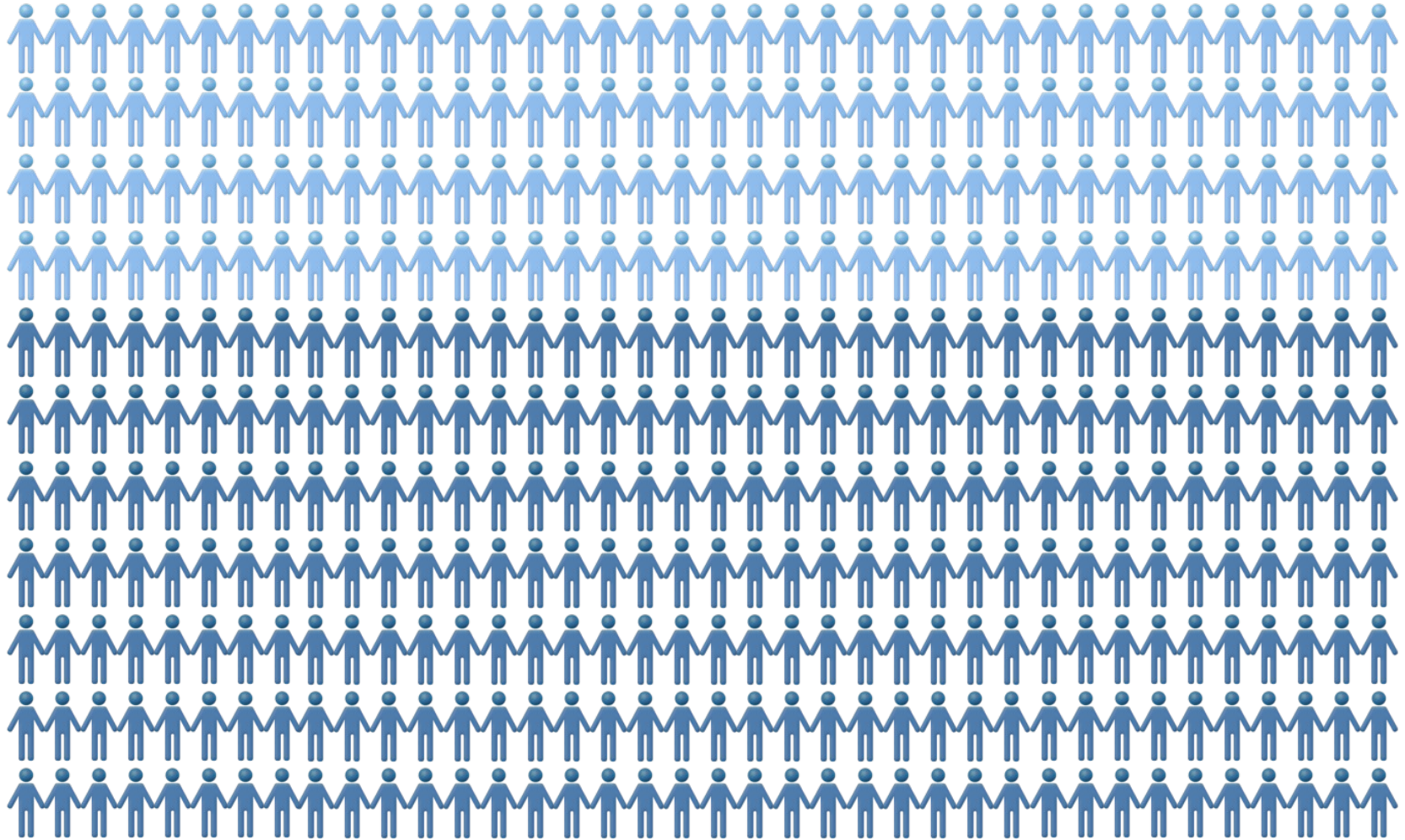
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# Two thirds used TurboTax Online



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# More than 7M small business customers using a variety of software *and* services



## Intuit Websites

## Intuit® QuickBooks® Merchant Service

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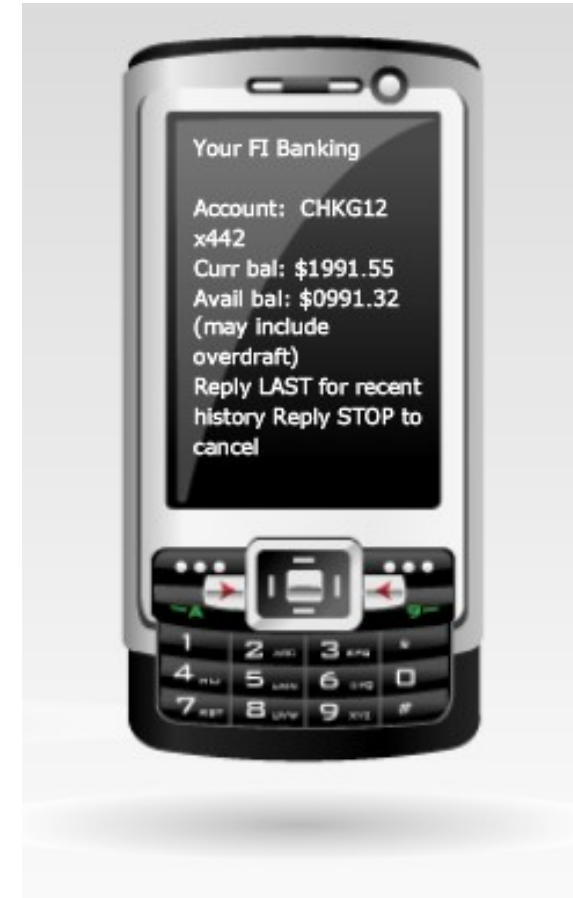
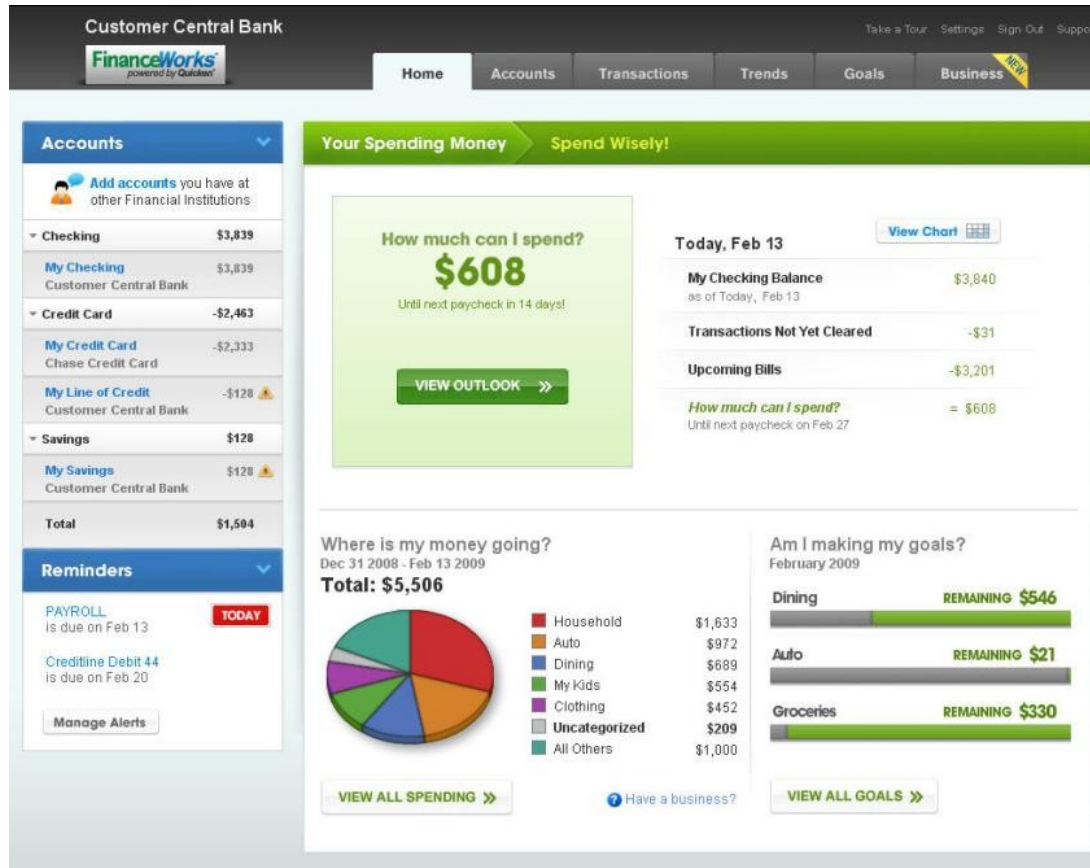
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# Power online banking for 9.2M people through 1,900 banks & credit unions

**intuit.** Financial Services



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**This year's estimated revenue**

**\$1B SaaS**

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# JBoss at Intuit

JBossAS user since 2002

Adoption of EAP December 2007

JBoss customer since June 2005

JBossAS versions 3.2.3, 4.0.2, 4.0.3, 4.0.4, 4.0.5

EAP versions 4.2, 4.3, 5.0

EJB3, Cache, AOP, WS, Web/Tomcat, Hibernate

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# Introduction to Web & Hosting Platform (WHP)

## Provides

- “Intuit” customized JBossAS/EAP

- “Intuit” custom modules

  - Authentication Module – JAAS integration with our authentication system, valves to handle OAuth based authentication

  - Activity Logging Module– Servlet Filters, WS Interceptors, EJB Interceptors to do generic trace/message logging

  - Wily and Splunk integration Module

- Internal JBoss support

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# **JBoss @ Intuit History**

## **Enterprise Application Platform vs. Community**

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# Enterprise Application Platform vs. Community

**1.6 release:** JBossAS 4.0.4 with the following patches/add-ons:

EJB 3.0\_RC7-FD

JBossAOP 1.3.6

JBossWS 1.0.0.GA

JBWS-1001, JBWS-943

**1.7 release:** JBossAS 4.0.5 with the following patches/add-ons:

JBossWS 1.2.1.ga.cp01.jbpapp-415

JBossWS Core 1.2.0SP1.200704161459

EJB 3.0\_RC9\_Patch\_1

JBossAOP 1.5.2.GA

JBossTS 4.2.2.GA

JBWS-1001, JBWS-1204, JBWS-943

JBoss-xml-binding-1.0.1.TEST

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# Enterprise Application Platform vs. Community

**1.8 release:** JBossAS 4.0.5 with the following patches/add-ons:

EJB 3.0\_RC9\_Patch\_3

JBossWS Core 12.0SP1.200705061341

JBossAOP 1.5.2.GA

JBossTS 4.2.2.GA

JBWS-1001, JBWS-1204, JBWS-943

JBoss-xml-binding-1.0.1.TEST

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# Enterprise Application Platform vs. Community

2.0 release: EAP 4.2.0CP01

No additional patches/add-ons

2.1 release: EAP 4.2.0CP02

No additional patches/add-ons

4.0 release: EAP 4.2.0CP02

No additional patches/add-ons

5.0 release: EAP 4.3.0CP02

No additional patches/add-ons

5.1 used: EAP 4.3.0CP02 with the following patches/add-ons

jbossws-native-2.0.1.SP2\_CP03

A patched jboss-ejb3.jar (unknown version)

A patched jboss-aop-jdk50.jar (unknown version)

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# Enterprise Application Platform vs. Community

5.3 release: EAP 4.3.0CP04 with the following patches/add-ons

jbossws-native-2.0.1.SP2\_CP05\_JBPAPP-1937

A patched jbosssx.jar (unknown version)

6.1 release:

EAP 4.3.0.CP06

No additional patches/add-ons

EAP 5.0 with the following patches/add-ons

JBPAPP-4045

SECURITY-490

JBPAPP-3082

JBPAPP-3759

JBPAPP-3879

JBPAPP-3812

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# Community Patch (In)Stability

## JBWS-1001

“OK, I have verified that these failures are due to tests against a newer version of JBossXB, as well as a test run problem that expects an ejb3 client jar that does not exist in 4.0.4 So IMO we are ok to release.”

## JBWS-1204

“I have a problem invoking an RPC style service. It used to work on jbossws-1.0.2.GA but now fails on 1.0.3.GA”

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# Community Patch (In)Stability

## JBossAOP 1.3.6

Upgrade jboss-aop to 1.3.6 to cope with incompatibilities in javassist 3.2.0CR1

## JBossAOP 1.5.2

“Is it possible there is an incompatibility with AOP dated 9-22-2006 currently bundled with JBoss 4.0.5.GA?”

“You will probably need to run the installer and pick the EJB 3.0 option to see the issue.”

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# Support Ticket EAP vs. Community

## Community

June 2005 – August 2008

304 JBossAS tickets, ~8/month

22 Severity 1 (Urgent) or 2 (High) tickets

## EAP

August 2008 – November 2009

117 tickets, ~7 /month

71 Severity 1 (Urgent) or 2 (High) tickets

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# Intuit Cloud Packaging, Provisioning

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# Intuit Cloud - Packaging

Standardized on RPM packages

Ability to install, upgrade, uninstall individual modules

Web interface to track installations via RPM queries

Provides ability to notify customers of critical patches, upgrades, and issues

Yum groups for commonly used components (e.g. custom modules)

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# Intuit Cloud - Provisioning

Web-based

RHEL 5 VMs

WHP provisions both JBossAS and EAP

Apache Web Server

Oracle DB

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# Project VM Instances

The screenshot shows a web browser window with the URL <https://home.pharos.intuit.com/web/it/pharos>. The page title is "Pharos v1 - home.pharos.intuit.com". The main header features the "Pharos" logo and the "intuit" logo. A navigation bar includes links for "PHAROS V1", "PHAROS V2", "SUPPORT", and "SELF SERVICE LABS". A welcome message "Welcome Tim Pedone!" is displayed. The main content area is titled "CSR DATA CENTER" and includes a user profile "TIM\_PEDONE@INTUIT.COM". A sub-header "My Runtime Environments" is present, with buttons for "Request New RTE" and "Project List". Below this is a table of runtime environments.

| Project | RTE Name                   | Host Name                            | Description                                 | Created Date     | Status                    | Delete |
|---------|----------------------------|--------------------------------------|---|------------------|---------------------------|--------|
| EIS     | <a href="#">eis-ci</a>     | c00000004499.pharos.intuit.com (APP) | <a href="#">WHP 6.1 Web Flavor</a> (RHEL 4) | 2010-04-19 16:00 | <a href="#">Completed</a> |        |
| EIS     | <a href="#">eisdevap01</a> | c00000004433.pharos.intuit.com (APP) | <a href="#">WHP 6.1 Web Flavor</a> (RHEL 4) | 2010-04-13 14:24 | <a href="#">Completed</a> |        |
| EIS     | <a href="#">eisdevap02</a> | c00000004434.pharos.intuit.com (APP) | <a href="#">WHP 6.1 Web Flavor</a> (RHEL 4) | 2010-04-13 14:25 | <a href="#">Completed</a> |        |
| EIS     | <a href="#">eisqaap01</a>  | c00000004435.pharos.intuit.com (APP) | <a href="#">WHP 6.1 Web Flavor</a> (RHEL 4) | 2010-04-13 14:26 | <a href="#">Completed</a> |        |
| EIS     | <a href="#">eisqaap02</a>  | c00000004437.pharos.intuit.com (APP) | <a href="#">WHP 6.1 Web Flavor</a> (RHEL 4) | 2010-04-13 14:26 | <a href="#">Completed</a> |        |
| EIS     | <a href="#">eisqaweb01</a> | c00000004653.pharos.intuit.com (WEB) | <a href="#">WHP 6.1 Web Flavor</a> (RHEL 4) | 2010-05-04 11:08 | <a href="#">Completed</a> |        |

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# Provisioning

The screenshot shows the Pharos v1 provisioning interface in a web browser. The browser address bar shows `https://home.pharos.intuit.com/web/iit/pharos`. The page title is "Pharos v1 - home.pharos.intuit.com". The user is logged in as "Tim Pedone" (Welcome Tim Pedone!). The page has a navigation bar with links: PHAROS V1, PHAROS V2, SUPPORT, and SELF SERVICE LABS. The main content area is titled "CSR DATA CENTER" and shows the user's email address "TIM\_PEDONE@INTUIT.COM".

The "Request New RTE" form is visible, with the following fields:

- Project: SPC
- Cloud Type: Intuit Cloud
- RTE Topology: 1 Web + 1 App + 1 DB
- RTE Template: WHP 6.1 (Mar 2010): whp-ws Flavor (RHEL 4)
- Flexible Configuration: Apache ☒, JBoss ☒, Oracle DB ☒
- RTE Details: RTE Name: MyTestVM, Notification Email Address: tim\_pedone@intuit.com, Extended sudo privilege: No

The "My Usage" table shows the following data:

| BU Name | Project Name       | Quota Type | Limit | Usage | Available |
|---------|--------------------|------------|-------|-------|-----------|
| SPC     | EIS                | 1+1+1      | 0     | 0     | 0         |
| SPC     | EIS                | All-in-one | 15    | 6     | 9         |
| SPC     | EIS                | External   | 0     | 0     | 0         |
| PDIT    | Personal           | All-in-one | 200   | 190   | 10        |
| PDIT    | Personal           | Windows    | 100   | 81    | 19        |
| SPC     | SPC                | 1+1+1      | 5     | 0     | 5         |
| SPC     | SPC                | All-in-one | 66    | 62    | 4         |
| CTO     | MacPilotDevelopers | Windows    | 25    | 4     | 21        |
| CTO     | MacPilotDevelopers | 1+1+1      | 0     | 0     | 0         |
| CTO     | MacPilotDevelopers | All-in-one | 20    | 0     | 20        |
| CTO     | MacPilotDevelopers | External   | 0     | 0     | 0         |

The "1 vm Per Developer (You can choose either a Linux VM or Windows VM)" table shows the following data:

| VM Pool       | Limit | Usage | Available |
|---------------|-------|-------|-----------|
| Windows       | 100   | 81    | 19        |
| Linux VM Pool | 200   | 190   | 10        |

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# VM Details

The screenshot shows a web browser window with the URL `https://home.pharos.intuit.com/web/iit/pharos`. The page title is "Pharos v1 - home.pharos.intuit.com". The interface includes a navigation bar with links for "PHAROS V1", "PHAROS V2", "SUPPORT", and "SELF SERVICE LABS". The main content area is titled "CSR DATA CENTER" and displays details for a specific environment.

**CSR DATA CENTER**

| Edit                 | RTE Name | Description                                 | Topology   | Job#  | Env ID | Status | Delete |
|----------------------|----------|---|------------|-------|--------|--------|--------|
| <a href="#">Edit</a> | eis-ci   | <a href="#">WHP 6.1 Web Flavor</a> (RHEL 4) | All-in-one | 13126 | 4178   | ONLINE |        |

**Configuration Details**

| Code     | Details |
|----------|---------|
| Env Type | Dev     |

**Container Details**

| Node Name                      | Code          | Value   |
|--------------------------------|---------------|---------|
| c00000004499.pharos.intuit.com | Instance Size | Small   |
| c00000004499.pharos.intuit.com | Security Zone | Default |

**Associated Template**

| Name                               | Description                        | Version | Owned By |
|------------------------------------|------------------------------------|---------|----------|
| WHP 6.1 (Mar 2010): whp-web Flavor | <a href="#">WHP 6.1 Web Flavor</a> | 6.1     | PDIT     |

**Software Deployed To Container**

| Container Name                 | Component  |
|--------------------------------|--|
| c00000004499.pharos.intuit.com | <pre>apache-ant-whp Intuit 1.0.0.0 INTUiptadm Intuit CIO ECS CPM Team 1.3.0 whp-jboss-web-4.3 Intuit SPC WHP 6.0.2.0 whp-auth Intuit SPC WHP 6.1.0.0</pre> <a href="#">View All Installed Software</a> |
| c00000004499.pharos.intuit.com | spc-jboss-6.1-whp-web  |

**WARNING!**

You are requesting additional sudo privileges. These privileges could damage your environments as well as others who are using Pharos. In order to prevent the damage we are strongly recommending that you

1. Do not install large files in the root file system. All data (files, code, etc.) should be stored in `/pharos/env/$env_id` (where `$env_id` is something like `env_278`).
2. Do not reboot machine. Send your reboot request by logging a ticket in [HDRequest](#).
3. Do not change the root password.

Done

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# Provisioning Lessons Learned

Stay as “stock” as possible

Pushback on modifications to base JBoss

Customizations incorrectly blamed for issues (e.g. Cargo interoperability)

Modularity

No “big bang” releases

Adds complexity, but allows upgrades to individual components

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