ECA – Linux Tech Stack

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| * Version: 0.3 (Draft) * INTERNAL |
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| Introduction | |
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| Overview ECA brought in-house the Starrate development environment. This necessitates several Linux Servers (Both Desktop/Gnome and management servers be built) Previously builds were by hand/knowledge specific to Starrate. Purpose/Scope This document is aimed at the System Administrators with an overview of what makes up the ECA Linux Tech Stack. Assumptions Below assumptions are made:   1. A broad understanding of IT standards/methodologies. 2. Basic Linux administration skills. 3. Familiarity with ECA procedure and standards. |

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| Technology Stack | |
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| Tech Stack Diagram The diagram below represents the technology stack which underpins the ECA Linux Environment.  A picture containing screenshot  Description automatically generated Hardware Currently the ECA Linux environment are all virtualized hosts running on a **Windows Server 2019**, using **Hyper-V** as the Virtualisation layer. This is hosted upon a **HP ProLiant DL360 G10**  See the source image Server Specifications Server specifications as of **10/02/2020.**    The physical Server hosts a mixture of Windows Servers/SQL Server/Windows Desktop as well as the Linux Admin Server (lnlxspw01) and the Linux Gnome Desktops as virtual hosts.   Hypervisor/Virtualization Layer ECA is a predominately windows setup – the Physical server is running Windows Server 2019.  <https://en.wikipedia.org/wiki/Hyper-V>  Hyper-V provides the virtualization layer/management capabilities for the Virtual Machine hosted upon the server. LINUX Operating System The Linux VM’s/Development Desktops run the [**CENTOS**](https://centos.org/) operating system. This is an is a [Linux distribution](https://en.wikipedia.org/wiki/Linux_distribution) that provides a free, community-supported computing platform functionally compatible with its [upstream](https://en.wikipedia.org/wiki/Upstream_(software_development)) source, [Red Hat Enterprise Linux](https://en.wikipedia.org/wiki/Red_Hat_Enterprise_Linux) (RHEL)  This is a stable/widely used OS – while still being free.  Current (2020/02/20) ECA are using the CENTOS 7 release.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **CentOS version** | **Release date** | **Full updates**[[34]](https://en.wikipedia.org/wiki/CentOS#cite_note-centos-life-cycle-dates-35)[[35]](https://en.wikipedia.org/wiki/CentOS#cite_note-redhat-life-cycle-dates-36) | **Maintenance updates**[[34]](https://en.wikipedia.org/wiki/CentOS#cite_note-centos-life-cycle-dates-35)[[35]](https://en.wikipedia.org/wiki/CentOS#cite_note-redhat-life-cycle-dates-36) |  | | **7** | 2014-07-07 | 2020-08-06 | 2024-06-30 | Older version, still maintained | | **8** | 2019-09-24 | 2024-05 | 2029-05-31 | **Latest version** |   A close up of a sign  Description automatically generated SPACEWALK ***Spacewalk*** *is an open source Linux systems management solution. It is the upstream community project from which the* [*Red Hat Satellite 5*](https://www.redhat.com/products/enterprise-linux/satellite/) *and* [*SUSE Manager*](https://www.suse.com/products/suse-manager/) *products are derived.*  **[URL]** [**https://github.com/spacewalkproject/spacewalk**](https://github.com/spacewalkproject/spacewalk)  Spacewalk's capabilities include:   * Inventory your systems (hardware and software information) * Install and update software on your systems * Collect and distribute your custom software packages into manageable groups * Provision (kickstart) your systems * Manage and deploy configuration files to your systems * Provision virtual guests * Start/stop/configure virtual guests * Distribute content across multiple geographical sites in an efficient man   It provides a centralised/automated tooling for both building and patching servers.  **[URL] [ECA Spacewalk Web](https://lnlxspw01.domain01.starrate-intranet.co.uk/rhn/Login.do?url_bounce=%2Frhn%2FYourRhn.do&request_method=GET)** | |
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### Spacewalk

Spacewalk was chosen as a means of management (build/patch/report) for the Linux hosts. It gives an easy to use interface, rather than just CMD line functionality.

### Build

Rather than use the built-in kickstart/cobbler (Boot across network) (which would require editing of files/Mac addresses, network setup for ARP etc) We are using a hybrid workflow for ease of use:

1. VM/Hyper-V host manually created/IP assigned
2. Boot DVD/ISO
3. Configure/Install new host (Software/Disk Layout/Network/Root Password) via the GUI presented on the Hyper-V Console.
4. Attach new host to the Spacewalk server (specific channels) which provides a tested baseline.
5. Spacewalk as only source for installation of software (command and control)

### Patch

Previously the Gnome Desktops were built by hand. Then were then not patched/updated.

Now the gnome desktops are bound to the Spacewalk servers for OS/certain 3rd party software staged repositories. The OS software repos pull down nightly any new fixes/Errata/new versions of the software.

It is recommended that a quarterly approach be taken (unless a Security risk with a HIGH CVE score (examples being Spectre and Meltdown))



Where either the specific fix is applied, or if needed an interim patch set generated/applied.

We’ve deployed the Ivanti agent onto the

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## Ansible

### What is Ansible ?

<https://www.ansible.com/>

**Ansible** is a configuration management/automation tool. It works on the premise that you describe what the end state should be. The state/tasks which are evaluated/actioned are based upon idempotency (i.e. they will not run if nothing is to be changed)

Playbooks are platform agnostic (**i.e.** you could run the same playbook on Linux/Solaris and end result should be the same.

### Playbooks

Playbooks are the declarative configuration files where the end-state is described. Quite often you will use Ansible-Modules (file/yum/user for example)

This makes them very flexible/powerful rather than a monolithic static script.

### Playbook Language

Playbooks are written in YAML. While flexible it is very pedantic re white spaces/extra characters at end of lines for example.

### Plays/Roles/Tasks

**Playbook** - is the name given to the file which maybe made up of one or more ‘plays’ in a list

**Plays** - maps to the TARGET hosts

**Tasks** – are the actions/end state definition. Each play contains a list of tasks. Tasks are executed in order, one at a time, against all machines matched by the host pattern, before moving on to the next task.

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| Related documents | |
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