1.1 Network Architecture

Introduction

Also see: 1.1.1 VPN Topology

PH-4705 - Authenticate to see issue details

Audience

- DigitasLBi DevOps
- DigitasLBi Security

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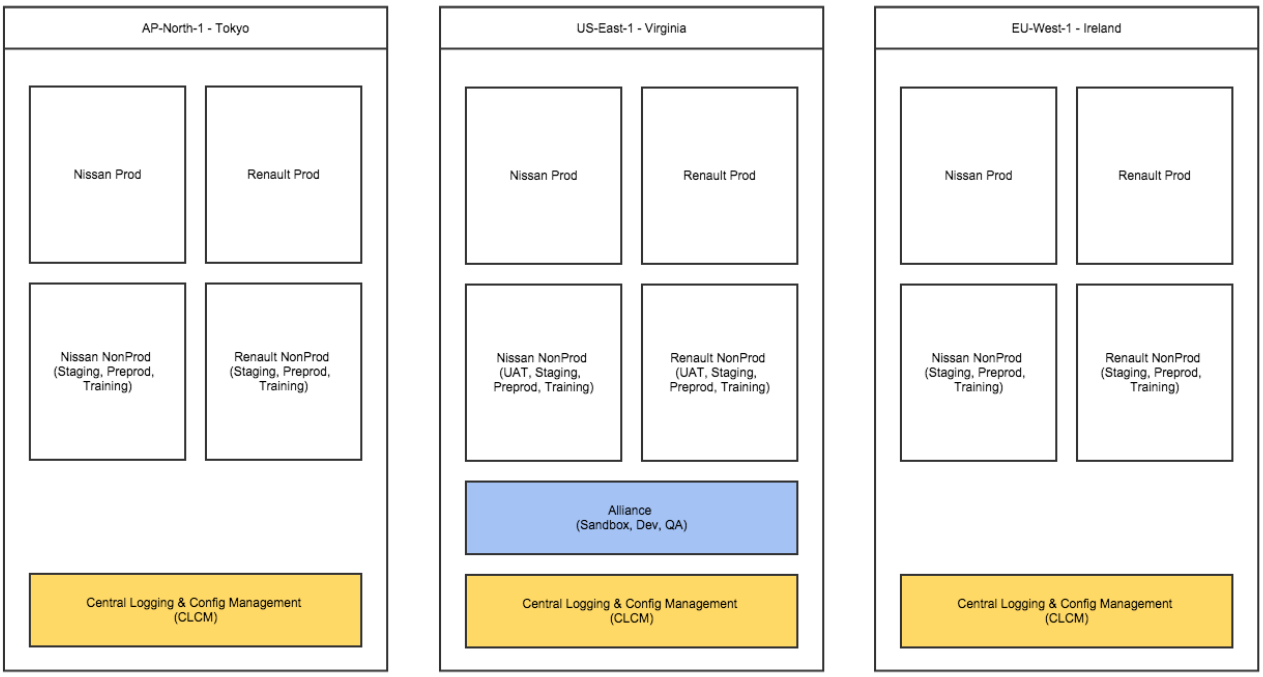
Environments & Locations

All environments are located within AWS. For production environments a larger 'core' environment (including content authoring) resides in the US-East-1 region, with smaller 'satellite' regions located in AP-Northeast-1 and either EU-West-1 or EU-West-2 (tbc). Non-production environments contain all tiers of production core, but restricted to a single AWS region.

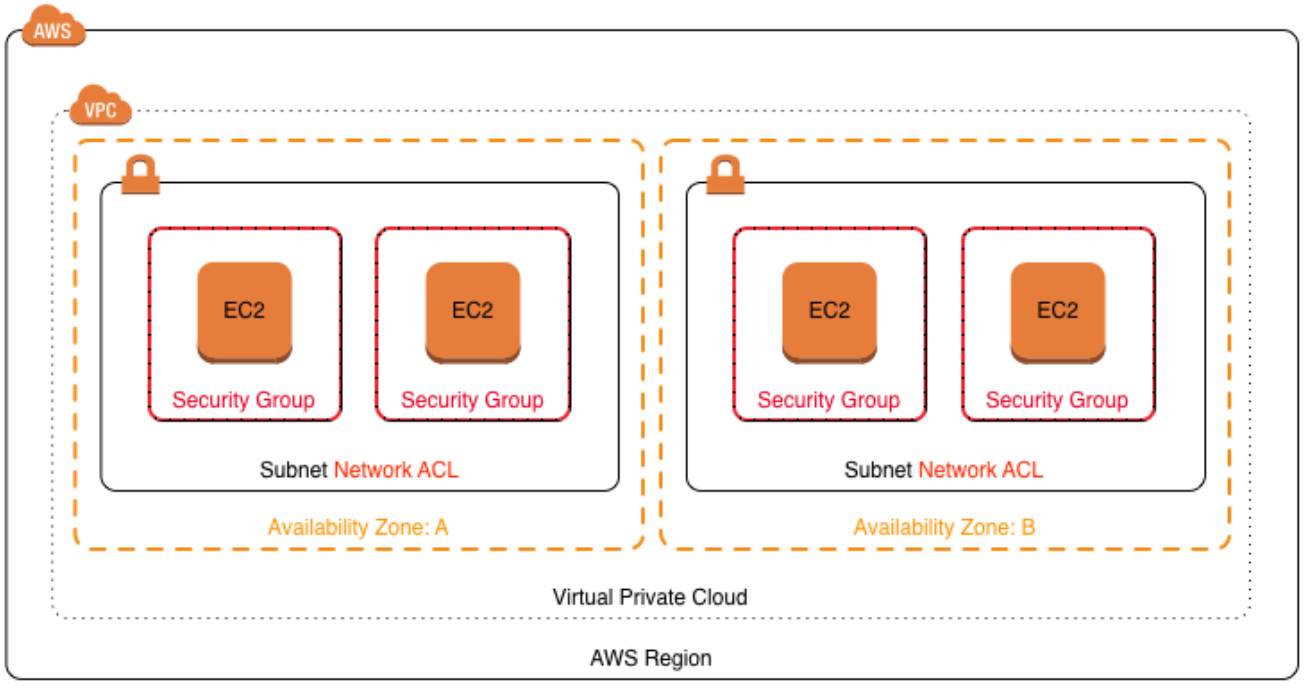
A dedicated management environment exists in each region to provide access to the client environments - for historical reasons this is named 'Centralised Logging and Configuration Management' , or 'CLCM'.

Above this CLCM environment exists the production and non-production environments for each of Renault, Nissan and Alliance. A high level view of the various environments resembles the below:



Amazon-specific Architecture

Each environment makes extensive use of AWS-specific architecture, namely VPCs, Availability Zones, Subnets ACLs and Security Groups.

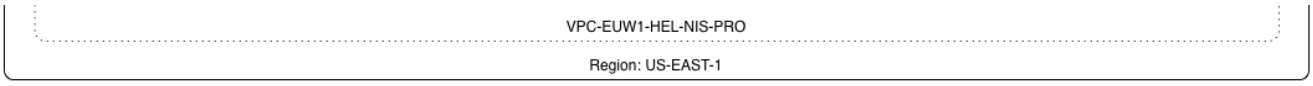


This does mean that extensive subnetting is required, as each tier with a given availability zone requires its own subnet. Details can be found here.

Environment Topology

Each environment or 'stack' is identical - from DEV through to PROD - only with differing quantities of machines in each tier dependant on environment. A high level view of a stack can be seen below:


VPN
AWS
VPC
NAT
SN-EUW1-HEL-NIS-PROD-PUBLIC01
BASTION HOST
NAT
SN-EUW1-HEL-NIS-PRO-PUBLIC02
BASTION HOST
SN-EUW1-HEL-NIS-PRO-PUBLIC03
SN-USE1-HEL-NIS-PRO-WEB01
SN-USE1-HEL-NIS-PRO-WEB02
SN-USE1-HEL-NIS-PRO-WEB03
AEM PUB
AEM PUB
SN-EUW1-HEL-NIS-PRO-AEMPUB01
AEM PUB
AEM PUB
SN-EUW1-HEL-NIS-PRO-AEMPUB02
AEM PUB
AEM PUB
SN-EUW1-HEL-NIS-PRO-AEMPUB03
AEM AUTH
SN-EUW1-HEL-NIS-PRO-AEMAUTH01
AEM AUTH
SN-EUW1-HEL-NIS-PRO-AEMAUTH02
ESB MGR
ESB
SN-EUW1-HEL-NIS-PRO-ESB01
SN-EUW1-HEL-NIS-PRO-ESB01
SVCS APP
C2G APP
SN-EUW1-HEL-NIS-PRO-SVC01
SVCS APP
C2G APP
SN-EUW1-HEL-NIS-PRO-SVC02
SVCS APP
SN-EUW1-HEL-NIS-PRO-SVC03
MONGO DATA
SN-EUW1-HEL-NIS-PRO-APIMONG01
MONGO DATA
SN-EUW1-HEL-NIS-PRO-APIMONG02
MONGO DATA
SN-EUW1-HEL-NIS-PRO-APIMONG03
MONGO DATA
MONGO BACKUP
SN-EUW1-HEL-NIS-PRO-AEMMONG01
MONGO DATA
SN-EUW1-HEL-NIS-PRO-AEMMONG02
MONGO DATA
SN-EUW1-HEL-NIS-PRO-AEMMONG03
RDS
SN-EUW1-HEL-NIS-PRO-RDS01
RDS
SN-EUW1-HEL-NIS-PRO-RDS02
SN-EUW1-HEL-NIS-PRO-ELB01
SN-EUW1-HEL-NIS-PRO-ELB02
SN-EUW1-HEL-NIS-PRO-ELB03
Availability Zone: A
Availability Zone: B
Availability Zone: C



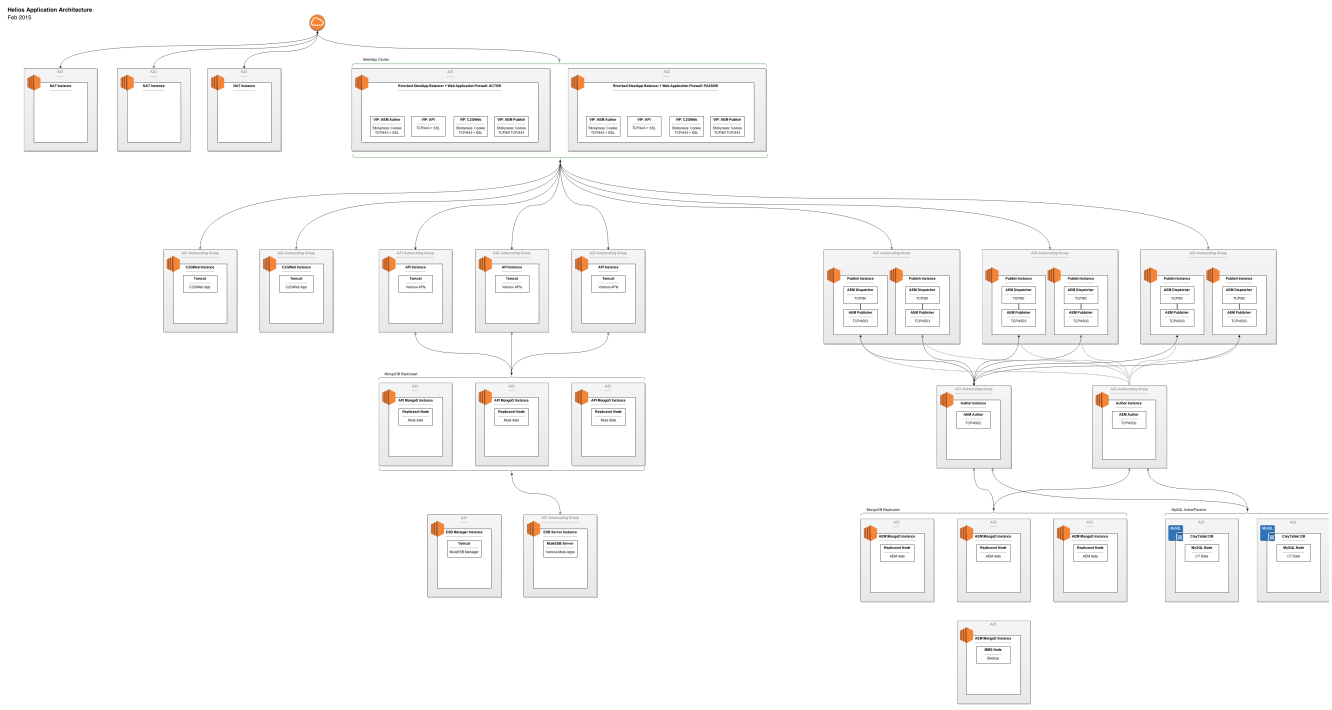
Name and function of each tier can be seen in the table below:

Name of tier	Function of tier
Public	Location of all perimeter network devices and services: NAT, VPN, public balancers/WAFs
Web	Currently unused due to consolidation of AEM Dispatcher and AEM Publish roles (see below)
AEM Publish	Location of the AEM dispatcher/publish instances. In Helios, the dispatcher resides on the same volume as Publish to simplify provisioning/network/AEM configuration
AEM Author	Where the AEM Author instances reside
ESB	Location of MuleESB instances and their management node
Services	API, C2GWeb application servers
Mongo API	Mongo DB stack supporting the Services tier
Mongo AEM	Mongo DB stack supporting the AEM Author tier
RDS	Amazon RDS subnet (currently used only for a plugin for AEM Author called Clay Tablet)
ELB	Internal ELB segregation tier, currently unused.

Detailed Production Environment View (Core)

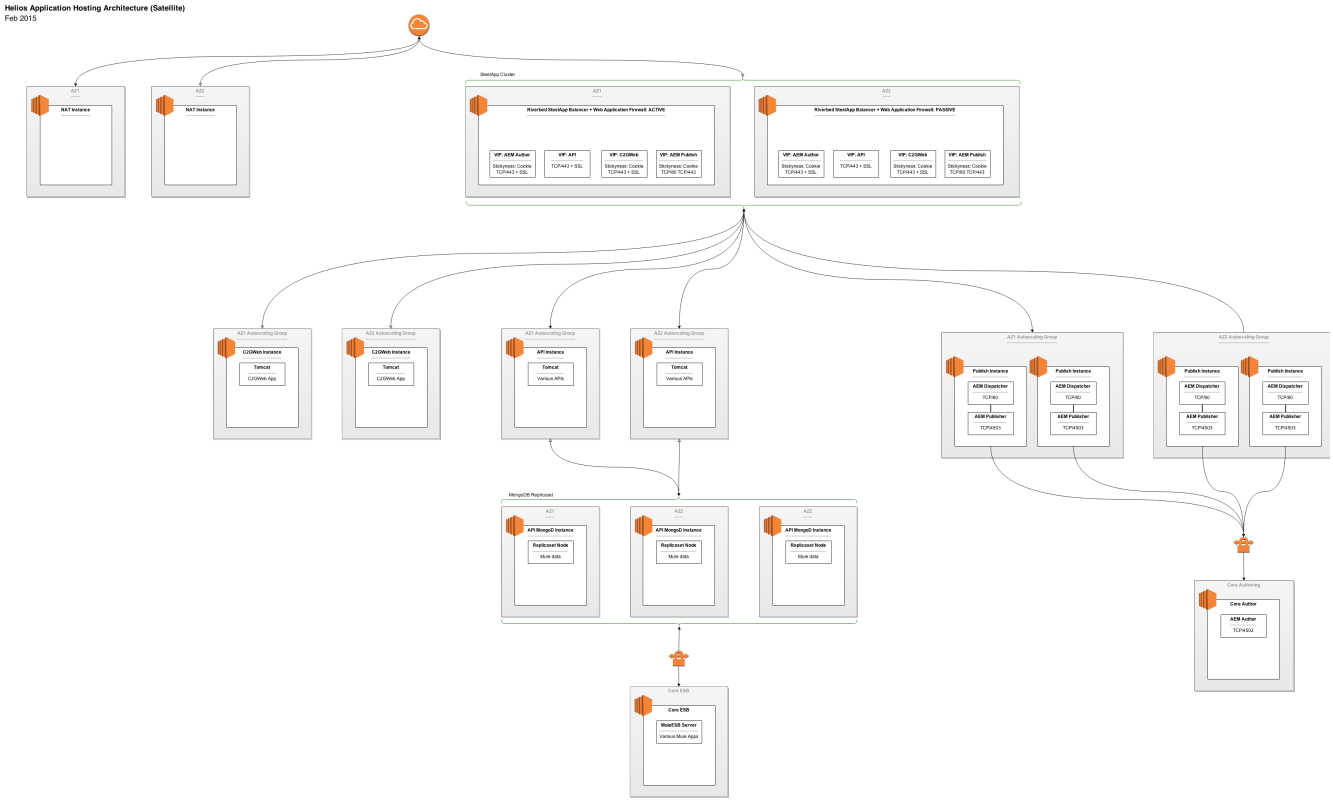
The diagram below explains the relationship between tiers at the time of writing. There will definitely be change as the project develops.

(click to view at sensible size, Confluence doesn't support larger images)



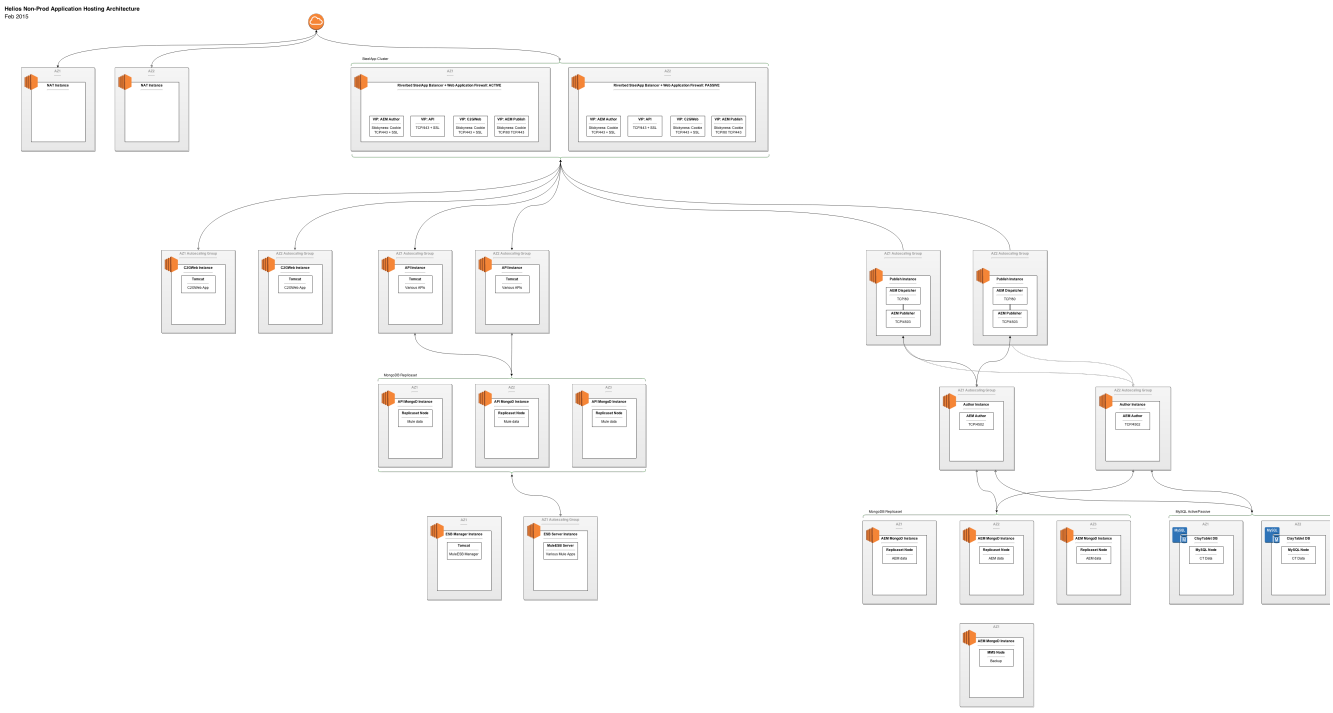
Detailed Production Environment View (Satellite)

The diagram below explains the relationship between tiers at the time of writing. There will definitely be change as the project develops.



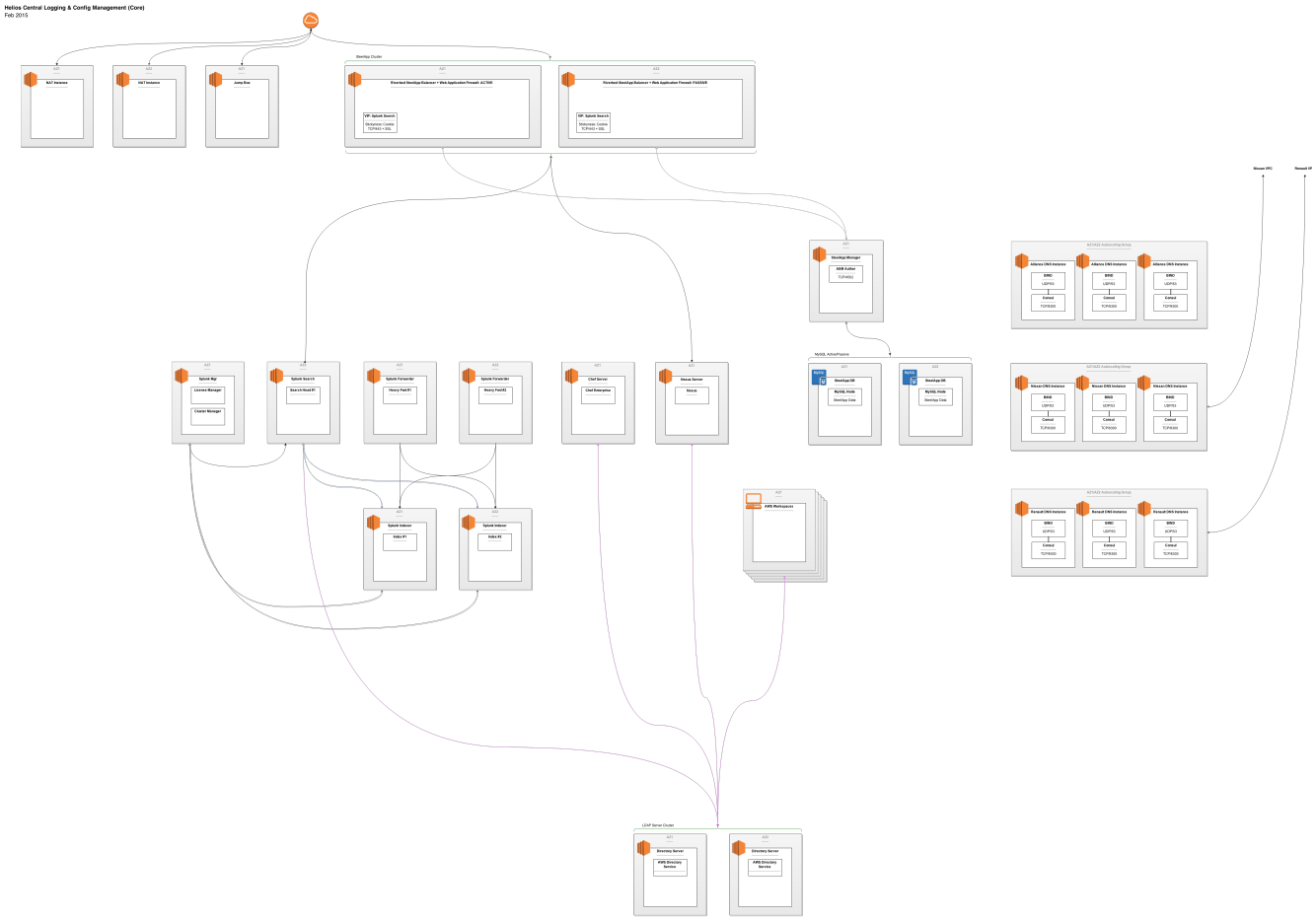
Detailed Non-Production (QA, UAT, Hotfix etc) Environment View

The diagram below explains the relationship between tiers at the time of writing. There will definitely be change as the project develops. Note that the non-production environments are effectively identical to production, but with smaller numbers of application instances and lower spec machines where possible. For example, AEM Publisher instances are restricted to 2 per environment in order to control costs, but also allow tests for creation/management of replication queues within AEM Author. Similarly C2GWeb instances need to demonstrate successful cache replication, and AEM Authors correct behaviour when clustering. As all configuration is managed through code, non-production environments are designed to mimic production as closely as possible in order to reduce risks, and uncover potential issues during dev/QA/UAT cycles.



Detailed CLCM Environment View (Core)

The diagram below explains the relationship between tiers at the time of writing. There will definitely be change as the project develops.



Detailed DEV Environment (Core) including CI driven instances

The diagram below explains the relationship between tiers at the time of writing. There will definitely be change as the project develops.

Helios DEV Stack + CI Dev Instances
May 2015