# Cloud Week Notes

## Day 1

## B Osoro – intro

Strategy for Cisco – CCA-MCP for SP, Metapod, CECS and Cisco Cloud Consumption Services

Cisco still believes that networking is important to the cloud – someone called Yvette is focussing on exposing networking smarts through the stack.

Some meeting on Nov 16th is supposed to make a decision on CIS and what is happening and working there.

There is 4 x 9s sla on Metapod. That is a strong selling point we are told.

Shipped is likely to be bundled with Metapod in next 4 – 6 months – although this was not exactly stated emphatically - so this could change.

PaaS – Apprenda on pricebook, Pivotal CF will also be on the PB in December we were told

And that was that – the Cisco cloud strategy really and no CIS in there at all !! at least not really – just a very localised offering – see next section on S.P with Deutche Telecom Germany.

## 2nd Session for S.P.

‘CCA-MCP is going to be the leading architecture for enterprise clouds in partner or SP i.e. Cisco Powered

‘Cisco Digitization Software’ was mentioned – note to look this up – I did but could not find anything

#### Main Cloud Pillars for Cisco

vMS, CCA-MCP, Cloud Collaboration Apps and CIS are the **4 main pillars** on the slide (and yet CIS has a bit of a question mark over it!!)

**vMS is a validated architecture** – OOB services up and working quickly – options for SP vMS

* Includes Cloud VPN - secure broadband
* Cloud MPLS secure MPLS
* Cloud iWAN – some over internet some over MPLS

**CCA – MS** framework – tested for services like DR, Backup, Private cloud aaS, for SP – OOB

Collab in SP – HCS for ent space – Spark for SP

CIS – will go live with DT in 2 days – ie mid November – Openstack platform - it is 5-6 alpha – customers

Will be some more info on CIS in next couple of weeks- some meeting take place – but does not look like it will be what was announced at DevNet SJ

**Cisco Powered.**

**Cloud Demand** is compensation for ams for selling cloud, mostly Cisco Powered – FY15 has added 3 new providers and 5 new services every month. Lots of Cisco powered are joining

SAP HANAaS, HSS ( security), ISV GTM ( applications to partner clouds), DRaaS, DaaS ( desktop), ICF-Provider to partner cloud API ( about 70 partners 3 only in EMEA ( DD, Island, BT, actually 4 also Netcloud in Switzerland)

All living on VMDC

CCA-CMP is the strategy for BDaaS.

They say that they are looking to provide a unified API to allow customers to consume these services – this is what Cisco has to provide – I did not get much confidence in the answer.

Measuring Cloud attach rate – but not use rate.

350 customers of IFCb with CECS - - thought is customers are buying but not using, so really not sure what are the multi cloud attach rates

There is something called DCV – Solutions master – Cloud and Hybrid IT Curriculum – looks PSS focussed.

## Metapod Session

Scott Sanchez

Some books

* The New Kingmakers
* The Pheonix Project

**Metapod**

Hybrid DIY

Security DIY

Who are Presidio ? <https://cisco.jiveon.com/groups/presidio>

### Management Choices EMEAR across portfolio

**Customer managed** – CECS, UCS-Openstack

Partner managed – CCA MS, Cisco Powered, DTaaS (D Telecom CIS, the only instance of CIS)

**Cisco managed** – Cisco Metapod

CECS – Muti Tenant no, Hosted private model working on, on prem yes not designed to be multi multi tenant i.e multi company

Metapod – Multi tenant no, hosted planned, hosted on prem yes – the Metapod is all one company subdivided into projects or tenants – it is not designed to be multi-tenant from a multi customer point of view,

CCA MS Multi tenant yes, hosted private IaaS yes, Hosted multi tenant yes, on prem private IaaS no

Cisco powered – Multi tenant yes, Hosted private single tenant yes, Hosted private multi tenant yes, on prem private IaaS no

***No productised solution yet for multi tenant Metapod – can engineer but no OOB***

***No on prem multi-tenant solution – this is something the Metapod team are working on.***

## Cloud Compensation

$1.6bn FY15, expected to be even more this year

For every $ of cloud sold counts as a booking.

2 rates of compensation – 1 for VMDC and a premium tier including ACI and ICF

vMS – the first service is Cloud VPN has been added

**There are 3 types of services and 3 types of compensation**

1. Cisco Powered, 2. SaaS and 3. FCM/XaaS flexible consumption – these are very large deals and accounts, and have Cisco AS

All of these are compensated

* Cloud Demand bookings are Cisco Powered
* SaaS are Committed contract value
* FCM is paid as an annual compensation

<https://tools.cisco.com/WWChannels/LOCATR/openBasicSearch.do> Cisco Partner Locator

## Market Trends in Cloud Services

AWS Big Data

All data is stored in S3 to save money – you take the data out of S3 for Hadoop Map Reduce run putting it into EMR – elastic map reduce - ( which is expensive) and then put it back

With Cisco Metapod you can keep the data online all the time – saving any delay for availability with really no extra cost.

**Containers**

**Orchestrating containers**

[www.eightypercent.net/post/layers-in-the-stack.html](http://www.eightypercent.net/post/layers-in-the-stack.html)

Ansible runs and orchestrates based on Immutable containers i.e. you don’t modify them you rewrite them also terraform and saltstack are like this

CoreOS or **stripped OS** uses docker – see review of MS example of stripped down OS Windows Server Nano <http://www.wired.com/2015/04/super-slim-windows-microsoft-eyes-future-cloud-computing/>

**Open container** brings together rocket and Docker and other container models - <https://www.opencontainers.org/>

**Orchestration** – Mesos, Consul and Kubernetes

When containers come up you do not know what port or IP it is using, Consul goes some way to make this predictive – Terraform can update and orchestrate in situ.

Registry for containers – Google and Amazon have theirs in addition to Dockers own. Need persistence –

**Mantl** – Matt Johnson UK representative – Mantl is going to have Calico, Mesos etc, Calico has now been officially changed to Contiv

Quote Adrian Cockfroft – people don’t want to pay for middleware but they are willing to pay for services

**Orchestration services**

Project – shipped

**ChatOps** – Slack Atlassian hip chat, have open APIs can easily add into dev environment – chat bots can provision services based on commands in chat

Hubot was a project that started chat ops.

Spark API is not open – Marcello has reverse engineered the API and published as RESTful

[vallard@cisco.com](mailto:vallard@cisco.com) great contact for devops conversation

## PaaS

Pivotal uses Spring application infrastructure that helps customers build their apps

PaaS as a service seems to be a good option for customers – standardise, focus on code only, speed to build,

‘The value of Cisco to PaaS is the promise of a Rock Solid IaaS underpinning the PaaS layer.’

Metapod is that value – the PaaS of the world find themselves engaged in IaaS stability issues

Pivotal will be put on the price book soon.

Metapod is becoming RedHat under the hood. Rock Solid IaaS is not enough – response is that most of the customers we have are those that have struggled with OS

## Serverless architectures

Bare metal, VMs and Containers all depend on an operating system. Serverless architectures are all about having no OS.

Look at Parse and Firebase – look at <http://thenewstack.io/amazon-web-services-isnt-winning-problems-poses/>

No OS fuss, patching, updating, maintenance – no load balancing

Not PaaS – you get canned microservices

AWS lamda can run on this

Api.serverless.com ( amazon) use lamda to verify the source – goes into kineses stream service, another lamda service select datasource

Check this out Amazon serverless architecture

**Invisible web** – darknet – how do transactions get completed if this is not above board

Peer to peer data center to data centre infrastructure –

DC – container managing contract – DC – smart contracts

Apeal to dev

Cust pay for services

Serverless architectures

smart contracts

## Adoption and Competitive Overview

Jenn Allen

**Competition**

HP – cloud broker – not as good as ‘Gravitant’

HP is laying off 30K people – gross margins under 5%

HP managed private Cloud – Converged 700x for cloud plus Cloud system 9.0

CSA is the HP portal – gives the customer view and management and chargeback across all clouds, on prem, Eucalyptus, not complete – take a look at this online.

# Day 2

## Metapod and Openstack Update

‘Project Mercury’

Steve Watkins

Cross communication often limits the adoption of new projects,

Openstack core projects are considered the priority

Mitrantis always insalls their own

Ubuntu is making their disty more insytallable

Redhat has many proprietary elements to differentiate itself

HP Helion has Ironic bare metal in their disty

**Value add on OS**

Cloud VPN ( NFV) ( vMS SP now will be announcing an enterprise version of this), Spark ( collab in Openstack), Cloud DVR Videoscape – Cisco has transcode solution compute from OS is a good fit for this.

Project mercury Openstack stack without the operations

VTS? – Cisco has designed many plug ins for Neutron – the VTS plug in is on a different track to the other hardware ones.

There will be SP and enterprise offerings of both Metapod and vMS ( NFV platform)

## Metapod

Metacloud mentality – take out all the things in the project that is not needed and solid, M supports Neutron, Cinder, nova, Glance, Keystone, Horizon, Heat.

Cloud foundry – Dec will announce the partnerships – needs neutron in Openstack – No ceilometer but that is likely to come in as is Swift storage

Openstack APIs – they have v2 and v3 – we support v2 as these have been around a long time. V3 is too new – affected by things like upgrades

Customers are resp for data encryption and protection – we have no access this.

We are waiting for a security statement that applies to patriot act – concerning access to the data

After the metapod has been removed from the hardware – at the end of contract, customer gets rot access back into their equipment

Support is 4 x 99s standard vs Advanced options – check these out – I had heard all support was the advanced option now.

2901 – used for vpn access

Identity integrates into LDAP, what about IPAM? – all internal at the moment – could maybe be integrated with Infoblox for e.g. but not aware of anyone that has done this yet.

Need to add a middle group between Member and Admin

Metapod Mini – roadmap item – could have virtual ASR or CSR – will be cheaper than the metapod with ASR

3 control nodes manage up to 500 slave nodes – very scalable compared to other offerings

Vmware – cust e.g had 17 control nodes for 100 slave nodes.

Storage license is for managed ceph – it’s a trust model for this.

UK working on Cisco capital also for the control node Metapod and for a monthly payment rather than paying per annum.

Cost – you pay per socket – that is it – does not matter whether the VMs are turned on

Trials – speak to Michael Doherty

Example – $260K with Metapod plus 30 Sockets plus 120 TB

## Neutron

Scale 4m dyn nat entries, 16k static, 4k vrfs - all on the ASRs

Uses ML2 plug in – Linux bridge – is the hypervisor neutron implementation

Note – the stack is different to that used with VTS/VTF

Why should this matter? Perhaps around standards – for security and compliance within the customer from the point of view of qualification

ACI integration? – no details regarding the use of plugins – makes these solutions look very independent and tactical

Multi- tenant

Keystone version we use does not have multi tenancy – ie an admin can see all projects

9Ks are managed by Neutron also

***Members cannot CRUD Neutron networks***

Autoscaling now requires a heat template – ceilometer would automate it – this is in the queue, no timeline

**Upgrade**

Customer contacted – timelines, live migrations etc are managed by Cisco.

This is why Cisco acquired Piston Cloud – for people.

**Competition**

HP and IBM have their own solutions vs Metapod now.

**Roadmap**

Compliance roadmap – PCI first goal and SOC2 (American) – FY16

Patriot Act US gov could take control of the Metapod – we would not be able to tell the customer this was happening.

### GUI User interface

Admin can set quota on CPU/Mem/storage

Images – can be private ( given tenant) or public

Key pairs are defined on a project basis

Resources are defined from a central pool – affinity rules are command line only

Scale – can scale up, but not down unless the instance has the same size disk.

Scale up is snapshot recreate

Solidfire recommended for Ceph

Scality – nothing yet

HEAT API is used for both HOT and Cloud Formation template calls

EC2 API allows customers to use their scripts that are written to EC2 API in Amazon – note Matt says though that this is a little out of date.

Openstack uses RAW image – we also use QCOW.

Can also use VMDK, VDi etc

## Role Play

How does your platform comply with with SOC and PCI these are important standards for our company and our industry.

We would feel better if we can use an on site solution – although AWS do say that comply - AWS is currently SOC for their internal processes and PCI for the Data Center

Don’t fall into the trap of AWS or Metapod – it is both together – so for geographical spread the customer can use Amazon, for certain high

Keystore is encrypted, for access to instances,

Why get off public cloud?

Cost – openstack is expensive to run, the cost of amazon is also high

Business considerations - Security and governance and compliance

Data intensive apps – moving the data into the cloud

Noisy neighbours

Openstack offers an open platform that can be viewed as more strategic as its open

Answer – we have PaaS we don’t care about the platform we are using

## Amazon

Azure is really catching up with Amazon

They have vswitch, App designer like stack designer from Cisco

Dell are building a MS version of managed service on prem

MS are making mind share with developers – e.g. ING are going with this. The view of Steve was that the lines are blurring between mode 1 and mode 2 on MS

Look for news on MS in the developer community

Docker is ported to windows now for e.g.

AWS Cloudformation – in Metapod the Cloudformation API sits in front of Heat

AWS has cloud watch and ELB – metapod does not – autoscaling can be done in Heat – but no trigger to initiate it

Cisco partners with AVI networks – a SaaS to monitor and trigger, AVI polls through the Control layer APIs – e.g. ZenOss – AVI polls and load balances

This is something that could be delivered by AS and as part of the Metapod service.

AVI would consume Neutron and Nova APIs for intergartion

AWS Container services – EC2 container services – Cisco Mantl – not yet for sale – would sit on Metapod in 4-6 months

AWS DB and analytics – metapod will be partnering called Tesora – who will integrate the Trove database – a relational DB – resold but not part of the metapod sale – not on gpl

Trove offers a management layer on top of multiple database products

Metapod has partnered with a company called Cloudwick – they are a tech and Big D consultancy – they will build any of the Big Data applications on Metapod

Cloud Foundry also has a Big D consultancy business – so being gold partner will help here.

The API to VMware is tree like and layered – and uses SOAP vs REST ( check the latest) same issue with CECS by the way

Openstack is much flatter and so easier to orchestrate through the API

Cloud foundry is open source they use containers called warden – Cisco also is doing Mantl

Lbs

HOT written in yaml, Cloud Formation written JSON

Metapod labs

Add graphite then select dashboard to the url

[**https://dashboard-trial4.client.metacloud.net/**dashboard/](https://dashboard-trial4.client.metacloud.net/dashboard/)

# Day 3

## Apps

[Vallard@cisco.com](mailto:Vallard@cisco.com)

SMAC acronym – 3rd platform

Importance of analytics – need to know and measure what s being developed – e.g Windows 10 with spyware built in

How to get from IT now to the cloud world

Cross the valley of despair – IT – how does it get to the new world – rap up – dev skills, all that – mode 1 for losers – mode 2 for cool dudes

‘Steve Balmer’ its all about the developes

Metapod is our platform for developers ‘’

Waterfall – 50% complete = 100% not unsable

In the past the ‘testers’ were low down the food chain

Now – very important – so key to getting the code to production

Vallard – said the reason he left was because he had no idea whether his code would be used – or what value it had – this is now changing – the new world provides the feedback immediately

Taiichi Ohno 1988 Lean manufacturing

The machine that changed the world

Books explain how to complete the pipeline for code delivery

Code is now developed in agile teams – scrums – sprint to get to prod or completion, its all about getting something out – usable

Working in teams means less likely to be distracted or to help focus and get to completion – all is visible

Mean viable product – MVP – the least amount of effort for producing something that can be of use – this is a new world – feedback seems to suggest that there is no one way to do this – but it is a change of culture

<http://12factor.net> this is how to write a cloud app

Top languages right now

Javascript, Java, Ruby, PHP, Python ( falling) maybe due to Go, - html is falling fast. CSS is ramping very quickly ( style sheets) , perl dropping, Go – unlike Python does not have any dependencies – on modules libraries etc ie you do not need to install anything

JSON is surely overtaking xml – e.g UCS or whatever – very complicated schema or syntax – json is so much simpler

{

Something = ‘something’

}

IaaS and PaaS are the speak now – API is the economy of the future e.g William Hill

Why Ruby so popular?? Puppet and Chef use Ruby – Ruby according to vallard is easy to do things very fast

However Ruby is a single thread based language so scale – is an opinionated language – the structure is agreed on so developers know how to build to the framework so that others can use – there is an expectancy on the build framework

Gitlab is an opensource version of Github – you do not have to pay – you actually download the environment onto your machine

## Docker

Originally made money from having a private repo

Set of tools

**Docker machine** allows you to run commands on multiple docker hosts

**Swarm** ? coordinate commands

**Compose** – bring up containers that are related to each other – aggregates them for commands together – expresses application intent

Plus **engine and registry**

<https://github.com/vallard/CiscoCloudDayLab1/tree/master/02-GitAndRegistries> is the git lab

# Why infrastructure?

Good question - it runs the h/w that runs the s/w that runs the code!!

Beware Shipped – it is opinionated – it will try to set up your dev environment locally on your machine how it wants to