

CloudStack 101

Tentative Syllabus:

Week	Lecture Title	Lecture Content	Lecturer	Slides	Video
1	Introduction to Cloud Computing and CloudStack	Basics of *aaS, Characteristics of Cloud computing, examples of OSS in the Cloud area. Intro to CloudStack as a IaaS solution	Mark Hinkle		
2	Open Source and the Apache Software Foundation	What, Why and How of OSS. Specifics of ASF and the Apache Way	Chip ?	6 Months In: What I've Learned about Apache Projects from Chip Childers	
3	CloudStack features and components			Apache CloudStack AlpesJUG from Sebastien Goasguen	
4	Introduction to Server Virtualization				
5	Xen hypervisor			Scale11x : Virtualization with Xen and XCP from Xen.org	
5 bis	KVM virtualization		Marcus ?	The kvm virtualization way from Francisco Gonçalves	
6	Enterprise Storage solutions		Mike T	Primary Storage in CloudStack Slide Deck	
7	Distributed Storage	How does distributed storage relates to CloudStack, use of Glusterfs, Ceph, Swift, Riak CS	Wido / John Burwell / Edison ?	Ceph storage for CloudStack from Wido den Hollander	
8	Networking in CloudStack	Basic, Advanced networking, VLANs setup, intro to SDN	Chiradeep / Hugo / Geoff ? . Background material: http://www.shapeblue.com/2013/01/07/understanding-cloudstacks-physical-networking-architecture/ and http://www.shapeblue.com/2012/05/01/cloudstack-networking-considerations/	Networking in the Cloud Age (LISA 2012 Tutorial) from Chiradeep Vittal	
9	VmWare and CloudStack in Corporate Environment Part 1	How to make use of your existing VmWare Environment with CloudStack in Corporate Environment with SharedNetwork Basic Zone	Ilya		
10	VmWare and CloudStack in Corporate Environment Part 2	How to make use of your existing VmWare Environment with CloudStack in Corporate Environment with SharedNetwork Advanced Zones Using VLANs	Ilya		

"Midterm"

At this stage, students understand what CloudStack does, the main components that are needed and the choices available to them. They start building their own cloud and start thinking about their end of the semester project 😊. In a 2 day CloudStack bootcamp setting, students work in the evening to get CloudStack running and identify their topic of presentation for the next day (ok fine 3 days).

11	Hands-on CloudStack deployment with DevCloud	Putting it all together with DevCloud, run CloudStack on laptop, compile CloudStack from source	Prasanna ?	DevCloud and CloudMonkey from Sebastien Goasguen	Testing CloudStack 4.1 with DevCloud from sebastien goasguen on Vimeo.
12	REST Web Services and Query APIs	Introduction to REST and Query APIs, review EC2 API and CloudStack API. Demonstrate various clients (e.g CloudMonkey). Show how to interact with CloudStack, how to make a request, how it maps with EC2 etc	Rohit ?		
13	Version Control and how to contribute	Basics of version control in software engineering, getting started with github and submit your first patch to CloudStack. A second part could cover advanced version control: reverts, tagging, merging, bisecting etc	Sebastien ?	Git 101 for CloudStack from Sebastien Goasguen	
14	CloudStack software architecture	Describe the CloudStack architecture, go through setting up a development environment. More in depth than the slides showed on the right. Setup eclipse: http://markmail.org/thread/pgwzvtohabsaqwi and cover the main components of the orchestration and the plugins.		CloudStack Architecture from Cloud Stack - Open Source Cloud Computing Project	
15	Writing a Plug in	Walk through of how to write a plugin, e.g Nicira Plugin	Alex	Orchestration & provisioning from bu ildcloud	

16	Case Study #1	A company that has deployed CloudStack in production presents its use case with technical details		Cloudstack at Spotify from Noa Resare	
17	Case Study #2	A company that has deployed CloudStack in production presents its use case with technical details	Roland Kuipers, Schuberg Philis		
18	Student Challenge	Students present their own CloudStack work, deployment, new plugin, API use etc			
19	Exam and informal certification 🤔	A course without an exam is not a course, we wrap up with a multiple choice questionnaire and a nice diploma			

Outcome

Students finish the course with a clear understanding of CloudStack, how to set it up, how to contribute to it and how it is used in industry.