OpenStack user personas

Three Cloud User Roles (based on “Description and Application of Core Cloud User Roles” ACM CHIMIT 2011, December 4 2011) that describe the tasks of the people who interact with any cloud-based Information Technology system:

1. Cloud Service Creator: Develop the technical and business aspects of a (simple or high-level) cloud service
    - Diane the developer (service component developer)
2. Cloud Service Provider: Provide all types of services (SPI, etc.) to a Service Consumer
    - Anna the enterprise admin01
    - Simon the SMB admin
    - Dan the deployer
    - Ursula the University IT Director
    - Victor the virtual infrastructure admin
    - Dennis the IT Director
3. Cloud Service Consumer: Consume all types of services (SPI) offered by a Service Provider
    - Erin the web developer/devops
    - Brad the beginner
    - Alan the AWS enthusiast
    - Walter the web developer

These personas are presented as typical OpenStack users:

1. Anna the enterprise admin
2. Simon the SMB admin
3. Dan the deployer
4. Erin the web developer/devops
5. Diane the developer
6. Ursula the University IT Director
7. Brad the beginner
8. Victor the virtual infrastructure admin
9. Dennis the IT Director
10. Alan the AWS enthusiast
11. Walter the web developer

Current OpenStack users/developers: 1-4. Likely/potential OpenStack users: 5-6. Key audiences: 7-10

Their characteristics have been set out for each of them as a set of points covering: skills, behavior patterns, goals, needs, attitudes, beliefs, workflow and working environment .

Need to consider for each of these profiles particulars of different industry segments, geographical location, etc.

We would like to eventually cover a broader selection of user profiles:

- An administrator of a private cloud for a small/medium-sized company (early adopter)
- An administrator of a private cloud for a multi-national company/government agency
- Cloud Architect for a large, multi-national organization with several data centers geographically dispersed around the world
- A developer of an application (web app, data processing job, …) which will be deployed on OpenStack or another public cloud (early-adopter/start-up)
- A developer new to the cloud, looking to move some traditional virt workloads off VMware and onto a cloud (probably because his boss told them to look into it)
- A virtualization administrator in a hosting company considering an OpenStack based public cloud for their customers
- A DevOps professional who works with application developers to ensure that their processes are automated and who takes care of the application lifecycle for the company's cloud stuff
- A member of a testing team who wants to automate the spinning up of test environments on demand as part of their testinI amg process
- An IT director who isn't in operations, but who decides what infrastructure is acquired by his organisation

Anna the enterprise admin

Anna is one of many administrators responsible for managing and maintaining an IT infrastructure (in a private cloud) for a medium-sized organization. She has several years of experience with Unix and Linux systems administration. She manages IT infrastructure, Cloud platforms and software used in enabling self-service ITaaS type of capabilities.

By-line: "No news is good news!"

- **Adoption curve**: Early majority/late majority
- **Skills**: Proficient in administering Unix and Linux systems. Several years programming experience in unix like environments.
- **Behavior patterns**: Responsible for onboarding all infrastructure and managing their full lifecycle. Monitors and manages usage and load on projects and underlying resources including VMs, networking, etc. Tasked with maximising uptime and efficient use of computing resources. Implements network and security policies as defined by others, e.g. Network Administrator and Security Administrator.
- **Goals**: Ensures optimal uptime and efficient use of computing resources and ensuring all data is secure, protected, and recoverable. Wants to support self-service provisioning

of virtualized replicas of channels, middleware, core services, customer and organization's data, application support, training, and other services, across data centers.

- **Needs**: A clear and efficient interface to be able to manage the full lifecycle of infrastructure and virt/cloud platforms, monitor resource use and quotas, as well as a mechanism to safeguard the data and recover easily from a disaster/outage. A user friendly administrative GUI interface, and a logically set out and explained command line instruction set. Complete and up-to-date man-pages for command line instructions.
- **Main Tasks:**
- **Attitudes**: Reliability and extended uptime are expected by her users. Administration must be efficient and quick response times to users' requirements are important.
- **Beliefs**: Once the initial deployment has been fine tuned to enterprise requirements, ongoing administration should be comparatively painless and easy. Global phone support will be available in real time if she experiences problems that are out of the ordinary.
- **Workflow**: Anna does most of her administrative work during usual business hours. She may be on call to handle out-of-hours emergencies. Difficulties administering OpenStack may cause significant disruption to normal workflow.
- **Environment**: Datacenters worldwide with racks of servers running heterogeneous operating systems - ESX, Hyper-V, KVM hypervisors. Windows, RHEL, Ubuntu guests. High speed reliable internet connection between workstations and OpenStack servers.
- **Interface Usage Tendencies:**
    - UI: Medium-High
    - CLI: High
    - API: Medium
- **Collaborates With:**

Simon the medium-sized company sysadmin

Simon administers a rack of servers for his company, a medium-sized building company which provides IT systems for monitoring ventilation, heating, security and water systems for the buildings they build and deliver to management companies. Simon uses whatever works that comes in under budget, and can save his development team time.

- **Adoption curve**: Early adopter
- **Skills**: Proficient in administering Unix and Linux systems. Competent shell and Python programmer. Early adopter of Puppet.
- **Behavior patterns**: Most of his time is spent adding services on demand, monitoring hardware, maintenance and change management. The rest is spent in capacity planning with his IT director, and testing potential new software to deploy.
- **Goals**: Ensures optimal uptime and efficient use of computing resources and ensuring all data is secure, protected, and recoverable. Stay on top of industry trends and help developers take advantage of best deployment practices.
- **Needs**: A great management interface for hardware resource utilization, quotas, and good back-ups and a recovery plan. A user friendly administrative GUI interface, and a logically set out and explained command line instruction set. Well documented APIs to integrate into other tools.
- **Main Tasks:**
- **Attitudes**: The company can deliver over its competitors by being agile, and staying on top of industry trends. Our developers want a great self-service testing environment for the apps we're delivering to customers, and a realistic test rig for the production environment.
- **Beliefs**: IaaS will give the company an edge by allowing easy set-up of the kind of distributed environment that exists in production. project-based management will allow teams to work effectively without stepping on each other's toes.
- **Workflow**: Simon is a tech enthusiast, and will occasionally take on weekend projects to learn new technology. During work hours, he is busy with maintenance and planning tasks, but typically has a couple of small test labs where he tries newer technologies that come on his radar.
- **Environment**: One rack of servers for development environments and the company's IT needs, and one or two servers per project in progress which will be delivered to clients on completion. Heterogeneous environment, but a preference for Linux and open source. A mix of VMware and some KVM-based hypervisors running Linux guests.
- **Interface Usage Tendencies:**
    - UI: High
    - CLI: High
    - API: Low
- **Collaborates With:**

Dan the deployer

Dan works for an IT services company. He's responsible for doing cloud deployments for his employer's clients, who are in general medium to large organizations with significant development teams in-house, but whose primary business is not IT. He handles initial OpenStack deployment or later major upgrades such as between versions, but not day to day admin.

By-line: "Don't over-engineer, only do what's good enough"

- **Adoption curve**: Early majority - he goes where the money is
- **Skills**: Familiar with Linux systems and cloud products. Some programming experience in unix related and Windows environments.
- **Behavior patterns**: Creates Cloud platforms and deploys software used in organizations such as in a business or government, as opposed to software used by individuals.
- **Goals**: To be able to install or upgrade to the latest OpenStack release with minimal fuss. To be able to configure the OpenStack deployment to best suit the enterprise's needs. To easily perform major system upgrades quickly, with minimal downtime.
- **Needs**: Where OpenStack components are combined with additional software, stable interfaces are a must. Upgradeability between releases. Clear accessible component dependencies, requirements and versioning is required. Clear unambiguous instructions on configuring OpenStack components to suit the required enterprise deployment. Complete and up-to-date man-pages for command line instructions. Deployment may be into heterogeneous environments. (multiple O/S, Architectures, Hypervisors,...)
- **Main Tasks:**
- **Attitudes**: Reliability, long term viability, and efficiency of an installation /deployment are important.
- **Beliefs**: OpenStack should be available as a product in a suite of cloud products and should interface smoothly with existing software. Global phone support will be available in real time should he experience problems he cannot resolve during deployment.
- **Workflow**: To avoid interruption to other services, Dan will most likely be doing his deployments after hours. Difficult or unreliable deployment may cause significant disruption to normal workflow.
- **Environment**: A rack of servers running RHEL-based hypervisors. Enough memory and storage to deploy the required number of "medium" or larger sized flavors of nodes. High speed reliable internet connection between workstations he uses and OpenStack servers.
- **Interface Usage Tendencies:**
    - UI: Medium
    - CLI: High
    - API: Low
- **Collaborates With:**

Erin the web developer/devops person

Erin uses the cloud to do software development utilizing virtual machines.

- **Adoption curve**: Early adopter
- **Skills**: Familiar with Linux systems. Several years' programming experience in Linux and other environments.
- **Behavior patterns**: Will choose from the range of available flavors of VMs to run. Will use OpenStack images to launch instances, also create and save her own.
- **Goals**: To set up and use OpenStack services with a minimum of fuss. Erin is focussed on the applications that will run on OpenStack and regards the services as resources to be used with a minimum of administrative overhead.
- **Needs**: A user friendly GUI interface, and a logically set-out and explained command line instruction set. Integration with her preferred CI tool.
- **Main Tasks:**
- **Attitudes**: Erin considers any complex administrative tasks to be the OpenStack administrator's job, and expects them to be responsive to requirements.
- **Beliefs**: OpenStack is a tool for running applications that will be more scalable and flexible than dedicated hardware.
- **Workflow**: Will mostly use the GUI and command line to set up and interact with OpenStack services, and will ensure that rolling out the application will be automated as much as possible. She will use the dashboard to monitor consumption of resources on an ongoing basis.
- **Environment**: A machine with enough memory and storage to run the applications needed to utilize the remote OpenStack service. High speed internet connection between Erin's workstation and OpenStack servers.
- **Interface Usage Tendencies:**
    - UI: Medium-High
    - CLI: Medium
    - API: Low
- **Collaborates With:**

Diane the developer

Diane is an OpenStack developer working on extending the API and writing applications that run on top of an OpenStack cloud (service component developer).

- **Adoption curve**: Early adopter - but perhaps not a big OpenStack user
- **Skills**: Familiar with Linux systems. Several years' programming experience in Linux and other environments. Experienced in the open source community.
- **Behavior patterns**: Diane is a developer working for a major player in IT. Her company has a vested interest in being seen as a leader in developing OpenStack compatible applications.
- **Goals**: To develop useful applications to interface with OpenStack and possibly contribute upstream to OpenStack components and services.
- **Needs**: Documented methodology or tips on producing applications on top of OpenStack. API and other interface specifications as well as back-ends. Needs to know what products are supported. An up-to-date reference to the architecture of the product. Clear unambiguous instructions on configuring OpenStack components. Complete and up-to-date man-pages for command line instructions. Clear accessible information on component dependencies, requirements and versioning. Clear information on the implications of upgrading between RHOS releases.
- **Main Tasks:**
- **Attitudes**: Diane is experienced and comfortable working in an innovative development environment. Adapting interfaces and specs to requirements is OK, so long as the changes are documented and comparatively easy to find.
- **Beliefs**: The applications Diane writes are part of a collaborative effort. The end products should interface smoothly with OpenStack core components. OpenStack developers are available on IRC and email to help with blueprints, API specs, and information about OpenStack components and their configuration, etc.
- **Workflow**: Diane does most of her development during usual business hours, although she fairly regularly works after hours too.
- **Environment**: One middle of the range Linux-based desktop/laptop computer., e.g. 2.5 GHz CPU, 4 GB memory.
- **Interface Usage Tendencies:**
    - UI: Low-Medium
    - CLI: Medium
    - API: High
- **Collaborates With:**

Ursula the University IT director

A variant of Dennis the IT director

Manages the infrastructure for a university & research center. 10,000 students, 800 postgrads, 300 teaching & research staff.

- **Adoption curve**: Early majority/early adopter
- **Skills**: Similar to enterprise IT director
- **Pain points:** Budget pressure, students & research staff pushing for scale-out on-demand computing.
- **Behaviour patterns:** As a university, there is a strong preference for cheap/free open source, with a sizeable student and/or staff knowledge base to self support. The university is typically an early adopter of technology where budget permits.
- **Attitudes:** Research staff are looking for AWS-like scalability for research experiments, the university is looking into running a private IaaS and PaaS (for typical demand) with cloud-bursting to a public cloud on demand, and with budget approval. Students and staff want self service to enable simple distribution of templates for classes, student projects and personal computing needs.
- **Environment**: 400 servers in 2 data centers, one running a HPC grid for research experiments which is under capacity, the other running university infrastructure and student & staff hosted VM needs.
- **Interface Usage Tendencies:**
    - UI: Low-Medium
    - CLI: Low
    - API: Low
- **Collaborates With:**

As with Dennis, Ursula cares about monitoring, security, system updates, capacity planning and budget. She has a higher tolerance for early adoption and self-supporting open source. However, she will not pick projects without a marketplace behind them, for fear of being saddled with an obsolete infrastructure choice and an expensive migration in a few years.

Brad the beginner

Brad is new to OpenStack and just wants to try out a few things to see what it is about.

- **Adoption curve**: Early adopter - will try anything once
- **Skills**: Limited familiarity with Linux systems, certainly not an administrator. Graduate with 1 year experience in programming in .NET framework.
- **Behavior patterns**: Works for Acme Software as a .NET programmer, testing OpenStack out of curiosity. May possibly install and uninstall OpenStack a few times over a period of a week or two.
- **Goals**: Wants a simple quick installation of OpenStack to get a feel for what it is.
- **Needs**: A simple quick installation experience with clear concise step-by-step instructions or a downloadable pre-configurable image to jumpstart using OpenStack. Minimal configuration or option choices required.
- **Main Tasks:**
- **Attitudes**: As this is his first experiment with OpenStack, long term viability, reliability and efficiency of an installation are not priorities. Getting OS up and running on one machine and removing it after brief evaluation is all that is envisaged.
- **Beliefs**: OpenStack is the next new-new thing but it is still a changing environment. I should probably know more about this “cloud” stuff.
- **Workflow**: This OpenStack installation is not an official part of Brad's job description, he might devote a few hours a day over a week or two to installing and playing with OS on a single separate computer between his day-to-day programming activities on other machines.
- **Environment**: One middle of the range Linux-based desktop/laptop computer., e.g. 2.5 GHz CPU, 4 GB memory. Few or no other networked computing resources for his initial foray into OpenStack. Internet connection for RHOS download.
- **Interface Usage Tendencies:**
  - UI: Medium-High
  - CLI: Low-Medium
  - API: None
- **Collaborates With:**

Victor the virtual infrastructure admin

Victor is an old-school VMware administrator. He monitors virtualized infrastructure in a data center, spins up new VMs on request, and maintains the virtualized storage, compute and network infrastructure necessary.

By-line: “automate all the things, expect the unexpected”

- **Adoption curve**: Early majority
- **Skills**: Experienced VMware administrator, keeps on top of tech trends related to cloud and datacenter virtualization
- **Behavior patterns**: Works for a medium size business, maintaining 40 hosts running around 700 VMs. Uses vSphere to monitor and manage. Plans ongoing maintenance of infrastructure, applies security updates to guests, and co-ordinates future IT deployment with other teams
- **Goals**: Satisfy evolving IT needs of organization, provide continuity of service for current services, ensure compliance with corporate guidelines & standards
- **Needs**: Flexibility to respond to changing IT needs without sacrificing short-term stability. Visibility into future needs to enable capacity planning.
- **Main Tasks:**
- **Attitudes**: Considering private IaaS as a way to allow greater independence to people in managing IT infrastructure - particularly QE & dev, who often ask for test and staging environments to be spun up & torn down. Worried about ongoing security and maintenance overhead.
- **Beliefs**: IaaS is the hot new thing, but the disruption it would cause migrating applications which work fine now to it may be more than I can handle. Perhaps we can dip our toes in with a small OpenStack deployment where we launch new projects, while keeping the traditional databases, mail, file sharing services on old virt hosts.
- **Pain points**: Deploying security & bug fixes to platform and guests, updating platform through upgrades, monitoring and management, capacity planning
- **Environment**: 40 servers running a variety of services, with an average of 700 VMs running in parallel.
- **Interface Usage Tendencies:**
    - UI: High
    - CLI: Low-Medium
    - API: Low-Medium
- **Collaborates With:**

Dennis the IT Director

Dennis is the IT director of a medium-sized public organization. He has 6 IT staff working for him, and he and his team manage 40 servers, and while he used to be a Unix admin, it's been a few years since he's had to get down & dirty.

By-line: "I want to see the TCO and the ROI"

- **Adoption curve**: Late majority
- **Skills**: Change management, capacity planning, budget management, team co-ordination
- **Behavior patterns**: Chooses infrastructure and software he can get support for. Company is still migrating vertical apps from client/server to web applications running on an application server. Other infrastructure is typical enterprise applications: SAP, databases, CRM, content management, email, storage...
- **Goals**: Stable infrastructure - minimal downtime for business critical apps. Deliver high quality infrastructure without increasing budget. Accountable for showing the ROI.
- **Needs**: Security and change management. Monitoring. More budget, more time to respond to growing list of IT requests.
- **Main Tasks:**
- **Attitudes**: Self-service is promising for some user categories, but this manager will steer away from it until there is a strong business case due to a perception of security and management risk on platforms he doesn't directly control. Perhaps will roll out IaaS as a pilot for QA and developers who have a need to spin up & tear down VMs frequently
- **Beliefs**: We're protecting the company's data, so security is something I take seriously. This cloud stuff is just too young for me to have faith in it yet.
- **Pain points**: Budget, time, change management. Pressure coming from his customers asking for quicker time to respond to IT requests and the need for self-service capabilities.
- **Environment**: 40 servers running a variety of services, with an average of 700 VMs running in parallel.
- **Interface Usage Tendencies:**
    - UI: Low-Medium
    - CLI: Low
    - API: Low
- **Collaborates With:**

Key influencers will be early-adopter IT staff who will run POCs

Alan the AWS enthusiast

Alan was an early AWS adopter. He writes and maintains a number of AWS-deployed applications, including staging and production, from the same data source. He needs to monitor his applications for cost, resource consumption, demand peaks and any crashes. He works for a small start-up. Puppet master.

- **Adoption curve**: Early adopter
- **Skills**: Experienced web developer & operations guy - not on his first cloud application architecture, masters CI and CD.
- **Behavior patterns**: Wants to concentrate on application development, not architecture. Change management - applying security updates to guest systems - takes a chunk of his time. He spends a little time every few months evaluating the cloud architecture to consider alternative components to increase price/performance.
- **Goals**: To deliver excellent scalable web-deployed applications with a web interface and robust API for a mobile application front-end. To deliver incremental, tested updates to the applications on a regular basis.
- **Needs**: Application lifecycle management, monitoring, to make his apps faster.
- **Main Tasks:**
- **Attitudes**: Alan loves the cloud. He might consider an alternative public cloud, but the cost would have to be cheap enough to justify the risk & effort of migrating away.
- **Beliefs**: Continuous deployment is king. Automate all the things. Do the hardest things often, until they're easy. etc.
- **Environment**: Macbook for development, deploys to AWS for test, staging and production.
- **Interface Usage Tendencies:**
    - UI: Medium-High
    - CLI: High
    - API: Medium
- **Collaborates With:**

Walter the Web Developer

Walter develops feature rich HTML5 applications using Symfony and Bootstrap, and a range of other web technologies. He has no real system administration skills, and develops on a single desktop computer or his MacBook. Walter wants the app to Just Work when he's finished, and doesn't really think a lot about caching, sharding, proxies, or making his app scalable. He works in a medium sized development shop which has people who take care of deployment and change management to the web applications he produces.

By-line: "Not a bug: Works for me"

- **Adoption curve**: Early adopter for web technologies, laggard for systems
- **Skills**: PHP, Ruby, Python, Javascript, CSS, multiple MVC frameworks, experienced Linux & MacOS X user (but not admin), comfortable setting up LAMP, github.
- **Behavior patterns**: Wants to concentrate on application development, not architecture. Spends most of his time in TextMate, and testing how app behaves and looks in VirtualBox.
- **Goals**: To deliver excellent web applications and robust RESTful API for mobile apps.
- **Needs**: Up to date application development stack, good developer tools, someone to actually deploy his app.
- **Main Tasks:**
- **Attitudes**: Walter would like to know more about the cloud but there's so much to learn, he has no real idea where to start, and just keeping on top of new web development trends takes all his research time.
- **Beliefs**: "This stuff should be easier to get a handle on"
- **Environment**: Macbook for development, a Linux desktop for test deployment, VirtualBox for testing on different browsers.
- **Interface Usage Tendencies:**
    - UI: High
    - CLI: Low
    - API: Low
- **Collaborates With:**