One Day IBM Cloud Private Workshop (Draft)

The one-day workshop is able to touch on a relatively wide array of topics.
We do not intend to provide hands-on exercises due to the logistics of trying to do that in a one-day workshop.

We do intend to have numerous demonstrations. The general approach should be to present by demonstration rather than presentation. Obviously there are times where a good diagram will be useful to communicating important concepts.

Docker Fundamentals (60 minutes)

Combination presentation, demo

- Overview
- Images
- Containers
- Dockerfile
- Build, Tag, Push
- Running a container

Kubernetes Fundamentals Part I (60 minutes)

Combination presentation, demo

- Overview
- kubectl
- YAML by example
- Kubernetes objects
    - Deployments
    - Stateful Sets
    - Replicas
    - Daemonsets
    - Services (Cluster, NodePort)

    - Storage (PV, PVCs, StorageClass)
- ICP Workloads and Service UI
- ConfigMaps, Secrets
- Ingress

Helm (30 min)

- Overview
- PPA
- Helm command line for ICP

IBM Cloud Private (60 min)

The structure of this may be a walk-through of the console using one or more applications to provide content Assume an ICP cluster with an LDAP configured. (*TBD* It would be nice to have an app deployed that was under some load so the monitoring would be interesting.)

- Overview
- Introduction to the user interface
- Deploying/upgrading Helm charts
- Monitoring/logging
- Application logging
- RBAC, namespaces,
- LDAP directory integration (ICP)
- External service integration (databases & rest services)

Storage (45 minutes)

- Storage options with ICP
- Trade-offs for each option
- At a minimum cover NFS, GlusterFS & Heketi, IBM Spectrum (GPFS)
- Other storage options

Microservices Part I (60 minutes)

- Application architecture
  - common architecture patterns (overview)
- Concerns, trade-offs, pitfalls
- Development process overview

Database options (60 minutes)

- Databases and microservice architecture
- ACID vs BASE
  - Transactional 2PC
  - Event sourcing pattern
- SQL vs No SQL
- Relational vs Object vs Document
- Compare and contrast:
  - MySQL/MariaDB
  - Cloudant
  - MongoDB
  - Oracle, DB2
  - Others - *TBD*

Microservices application logging and monitoring (30 minutes)

This may be a separate topic. Or it may be folded into one of the above microservices units.

- Kabana
- Logging framework

DevOps with ICP (60 minutes)

Assumes we can demonstration a CI/CD pipeline with some application

- CI/CD pipeline integration
- Jenkins integration
- Urban Code Deploy integration

Resource monitoring in ICP (60 minutes)

- Prometheous
- Grafana
- Integration with other monitoring tools (e.g, APM, NetCool) *TBD* This may require a separate unit.

Log monitoring in ICP (60 minutes)

- ELK Stack
  - Elastic Search
  - Logstash
  - Kabana
- Integration with Splunk

Other Topics

The topics below are expected to be for a specialized audience.

Microservices Part II (60 minutes)

For audiences interested in a deeper dive into micoservices and additional IBM related products that support the reference architecture

- IBM microservices reference architecture
- Walk through of microservices application implementation
- API Connect overview
- Datapower oveview (optional) *TBD* is this relevant here?

IBM Cloud Private Production Deployment (60 minutes)

For the operations team

- HA topology
- Docker storage driver
- Vulnerability Advisor
- Resiliency considerations
- Multi-site considerations
- Backup/restore
- Disaster Recovery

Application modernization Part I (45 minutes)

For audiences with legacy Java EE applications

- Typical application modernization concerns
  - modernization approaches
  - application cloud readiness assessment
  - estimating level of effort
  - creating a modernization roadmap

Application Modernization Part II (45 minutes)

For audiences with legacy Java EE applications

- Transformation Advisor (TA)
- Demo of TA

Deployment automation (45 minutes)

For operations audiences interested in a deployment automation.
TBD - Assumes we have a place to demonstrate some of this stuff.

- Terraform
- Ansible
- Cloud Automation Manager *TBD* May need its own unit. Demo could be difficult, but would be excellent, e.g., deployment to IBM Cloud.

Deploying ICP to public clouds (30 minutes)

For audiences interested in deploying ICP to public clouds
TBD - Is this ready for prime time?

- Terraform for AWS, IBM Cloud (SoftLayer), Azure