UP1 Test Results

1. HSA Test Acceptance:
   a. Code for adherence to meta-TDD standards
   b. Review of tests
   c. Resolution of discrepancy between PRD and delivered code
2. HSA Metrics:
   a. ATC
   b. SCS

Manual ATC and SCS (XWiki-GCE)

Steps	Step-1	Step-2	Step-3	Step-4	Step-5	Step-6.1	Step-6.2	Step-7	Step-8	Step-9	Step-10	Total
Task	Create VPC and Firewall Rules	Create DB Instance	Create Shared Storage	Create Bucket	Create VM Instance	Set up XWiki (No UI)	Edit Firewall Rule	Create Instance Image	Create Instance Template	Create Autoscaling Group	Set up Load Balancer	
GCP — Service	VPC	Cloud SQL	Filestore	Cloud Storage	Compute Engine						Cloud Load Balancing	6 services
SCS (UI input / click)	51	42	14	11	24	6	4	10	19	21	30	232
Manual ATC	0:04:09	0:12:00	0:05:50	0:01:10	0:01:23	0:25:00	0:00:23	0:03:00	0:02:07	0:03:00	0:03:33	1:01:35

- **ATC:** Average Time from Signup to Completion
- **SCS:** Sign-up to Completion Steps

- Web automation implemented by Selenium.
  Executed 20 times for each cloud

- **STD/Mean:** Coefficient of variation

Terraform ATC and SCS (XWiki-GCE)

GCE	Terraform Resource	Service Account	Networking	Cloud SQL	Filestore	VM Instance	Cloud Monitoring	Load Balance	Total	Total (hh:mm:ss)
	Auto ATC (Mean)	TODO	TODO	TODO	TODO	TODO	TODO	TODO	TODO	TODO

- **ATC:** Average Time from Signup to Completion
- **SCS:** Sign-up to Completion Steps

- Terraform automation executed 20 times for each cloud
- STD/Mean: Coefficient of variation

Manual ATC and SCS (XWiki-GCE-Basic)

Steps		Step-1	Step-2	Step-3	Step-4	Step-5	Step-6.1	Step-6.2	Total
Task		Create VPC and Firewall Rules	Create DB Instance	Create Shared Storage	Create Bucket	Create VM Instance	Set up XWiki (No UI)	Edit Firewall Rule	
GCP	Service	VPC	Cloud SQL	Filestore	Cloud Storage	Compute Engine			5 services
	SCS (UI input / click)	51	42	14	11	24	6	4	152
	Manual ATC	0:04:09	0:12:00	0:05:50	0:01:10	0:01:23	0:25:00	0:00:23	0:49:55

- **ATC:** Average Time from Signup to Completion
- **SCS:** Sign-up to Completion Steps

- Web automation implemented by Selenium.
  Executed 20 times for each cloud

- **STD/Mean:** Coefficient of variation

Terraform ATC and SCS (XWiki-GCE-Basic)

GCE	Terraform Resource	Service Account	Networking	Cloud SQL	Filestore	VM Instance	Cloud Monitoring	Total	Total (hh:mm:ss)
	Auto ATC (Mean)	0:00:08	0:00:12	0:05:25	0:03:11	0:00:12	0:00:01	0:09:59	9 min 59 sec

- **ATC:** Average Time from Signup to Completion
- **SCS:** Sign-up to Completion Steps

- Terraform automation executed 20 times for each cloud
- STD/Mean: Coefficient of variation

Load Test Configuration

- **GCE (VM x6):**
  - OS: Ubuntu 20.04 LTS
  - VM Spec: 4 vCPU / 16G Mem
  - Storage: 30G SSD
  - Location: us-west (Oregon)

- **GCP CloudSQL (MySQL HA)**
  - Spec: 2 vCPU / 4G Mem / 20G Storage
  - DB engine: MySQL 8.0

- **GCP JMeter (c2-standard-4) x1:**
  - VM / OS: Ubuntu 20.04 LTS
  - Location: us-west (Oregon)

- **Load Balancer Type:**
  - Global HTTP(S) Load Balancer

- **Auto-scaling Settings**
  - Threshold: CPU utilization at 60%
  - # of autoscaled VMs: 4 (in 2 zones)

- **JMeter Settings**
  - Ramp-up time: 55 seconds
  - Number of client threads: 55
  - Total duration: 24 hours

24HR Load Test Result (XWiki-GCE)

	GCE (latest ver.)
1. Total HTTP Requests	5,492,962
2. Total Successful Requests	5,492,894
3. Avg. HTTP Throughput (Request per second)	63
4. Avg. Response Time	886 ms
5. Min. Response Time	775 ms
6. Max. Response Time	3.2 seconds
7. Total Timed Out Requests	68
8. Total Server Errors (HTTP 500)	0
9. Total Failed Requests (Timeout + Server error)	68
10. Number of Failures / Million Requests	12

Estimated Daily Cost For Load Test (24 hours)

	GCE (Specification and rate)
VM Instance	GCE (c2-standard-4) vCPU: 4 Memory: 16 GiB Used Instances: 6 Hourly rate: $0.2088 **24-hour test usage: $35.82** **(VM + disk + network)**
Database	CloudSQL MySQL (db-lightweight-2) vCPU: 2 Memory: 4 GiB Storage: 20 GB Hourly rate: $0.23 **24-hour test usage: $5.54** **(DB + network)**
Shared Storage	Filestore (BASIC_HDD) Capacity: 1TiB Used size: 100GB / month **24-hour test usage: $6.82**
Networking	Cloud Load Balancing **24-hour test usage: $3**
24-Hour Test Usage	**$51.18**