Technology overview for the HPE Living Progress Challenge

Sean Hughes
Senior Manager, Developer Relations

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Developers and the Living progress challenge

– Turning ideas into apps through crowdsourcing
– Lifecycle of a crowdsourced solution
– Ideas for changing lives
  – Analyze Open Data to extract insights and visualize government spending
  – Use speech recognition to help people learn a foreign language
– HPE technologies
  – Haven OnDemand demo
Turning ideas into apps
Developers will have experience in a variety of programming languages and technologies

No limits for their solutions
– Ideas can target education, healthcare, unemployment or financial services
– Apps could be Mobile, Cloud, Big Data, or even for the Internet of Things (IoT)

Crowdsourcing unlocks potential
– Competitions attract engineering talent from all corners of the global web
– Competitions enable rapid prototyping and iterative development
– Compelling social problems and cash incentives motivate people to engage

HPE Technology foundation
– UI Frameworks
– App deployment solutions
– Big Data analytics
– Application performance management
– And more...
Lifecycle of a crowdsourced solution
CRM system – case index and search solution

- Working prototype after 3 challenges in <1 month
- Some contests have to be repeated
- Addressing security vulnerabilities is important
Ideas for changing lives
App examples
Analyze Open Data to extract insights and visualize government spending
Learn more: bit.ly/HOD_GovDataViz

- ID Hack 2015
- World Bank challenge
- Scanned document PDFs
- Haven OnDemand Optical Character Recognition API
- Data visualization of government spending
Use speech recognition to help people learn a foreign language
Learn more: bit.ly/AYNI_Tutorial

- Hack4Europe 2015
- Social Positive challenge
- In-browser video conference
- HPE Haven OnDemand Speech Recognition API
  - Support for 7 languages
- Text transcripts from video
HPE technologies being used in the Challenge

HPE Vertica
HPE Haven OnDemand
Other HPE technologies
Analytics Using HPE Vertica

Graph Analytics
- HPE Vertica – R UDFs
  - Network centrality metrics for Twitter profiles using the “igraph” package of R
    - Betweenness centrality
    - Closeness centrality
    - Eigen-vector centrality
    - Clustering coefficient

Text Analytics
- HPE Vertica – C++ UDFs
  - Tweet text processing and mining using C++ functions
    - @mention mining
    - Retweet handle mining
    - #tag mining

Statistical Modeling
- HPE Vertica – R UDFs
  - Statistical scorecard based modeling
    - Metric normalization
    - Outlier treatment
    - Structural equation modeling
    - Weighted scoring
SQL Analytics+ - Built for Big Data

Features
- Time series gap filing and interpolation
- Event window functions and sessionization
- Social Graphing
- Pattern matching
- Event series join
- Statistical functions
- Geospatial functions

Benefits
- High performance (Keep Data close to CPU)
- Low cost (Industry Standard building blocks)
- Ease of use (Automated + Available)

Use Cases
- Tickstore data cleanups
- CDR/VOD data analysis
- Clickstream sessionization
- Data aggregation and compression
- Monte Carlo simulation
- Graph algorithms
- Sensor Data
- Process Control Time Series
- SmartGrid
- ...
The HPE Vertica Core
Same core engine regardless of deployment

Core HPE Vertica SQL Engine
- Columnar Store
- Aggressive Data Compression
- MPP Architecture
- HA Architecture
- ANSI SQL Compliant
- Java, Python, R APIs
- ACID Compliance
- No Single Point of Failure
- Management Console
- Database Designer
- Projections and Optimizations

See online doc
- Analytic functions - tinyurl.com/v-analytic-functions
- SDK - tinyurl.com/v-analytic-SDK
HPE Haven OnDemand
Accelerate development of cognitive computing solutions and data rich apps
HPE Haven OnDemand includes 60+ APIs to Connect, Extract, Index, Search, & Analyze data

HPE Haven OnDemand capabilities:
✓ Speech-to-text from Audio/Video
✓ Face detection and image recognition
✓ Index distributed data sources
✓ Extract contents from archive files
✓ Render documents to HTML for preview
✓ Extract text from files, including OCR
✓ Identify topics and analyze sentiment
✓ Understand context and concepts
✓ Create predictions and recommendations
✓ Create a custom federated search engine
**HPE Haven OnDemand** provides Developers with powerful functionality, delivered by a scalable multi-tenant PaaS accessed on-demand via APIs.
**What is an API?**

APIs provide Developers with the means to rapidly integrate new functionality in their app.

**Problem:** What are people saying about my service on social media?

**Action:** Call the HPE Haven OnDemand sentiment analysis API to analyze the customer messages.

```
curl -X POST https://api.havenondemand.com/1/api/sync/analyzesentiment/v1 \   --form "apikey=YOUR_API_KEY" \   --form "text=The restaurant was amazing, but the guest services were terrible."
```

**Outcome:** HPE Haven OnDemand returns contextual insights from the text analysis.
Let’s take a look at the APIs in action

HavenOnDemand.com
Other HPE platforms
http://grommet.io
The most advanced open source UX framework for enterprise applications

Accessible, Responsive, Modern Applications

Ready for your designer’s workflow

Developed with the best stuff

$ npm install -g grommet
$ grommet init your-app
R is the language of data scientists

R is a programming language for statistical computing

Popular
Open source
Flexible
Extensible

Not scalable
Single Process
Single process Data Transfer

Distributed R extends R language to provide distributed computing

Scalable
Growing number of distributed algorithms
Multi threaded data transfer
HPE Helion enables cloud native workflows that are much simpler and can bring an app from dev to prod in minutes instead of weeks/months

Cloud Software

- HPE Helion CloudSystem
  Flexible, capable, & open private cloud software

- HPE Cloud Service Automation
  Cloud management platform

- HPE Helion OpenStack®
  Open source IaaS

- HPE Helion Stackato
  Open source PaaS for multi-cloud deployments

- HPE Helion Development Platform
  Open source PaaS for HPE Helion OpenStack and HPE Helion CloudSystem

- HPE Helion Eucalyptus
  AWS compatible private cloud software

Integrated Solutions

- HPE Helion CloudSystem Solution
  Fully-integrated hybrid cloud solution

- HPE Helion Rack
  OpenStack-based private cloud solution

- HPE Helion Content Depot
  OpenStack Swift-based Object Storage solution

Managed Services

- HPE Helion Managed Virtual Private Cloud
  Secured, multi-tenant private cloud

- HPE Helion Managed Private Cloud
  Secured, dedicated private cloud

- HPE Helion Managed Cloud Applications
  ERP, CRM, & workplace applications
HPE Open Source projects

Cloud
- OpenStack® project
- Cloud Foundry® project
- HPE Linux for HPE Helion
- OpenStack

Big Data
- Hadoop
- Distributed R

Networking
- OpenSwitch
- Open Platform for NFV
- OpenDaylight

Platform
- Linux®
- Ceph/Swift/GlusterFS
- KVM/Xen/Docker
- Nagios/Score

The Machine
- L4TM
- Foedus

OpenStack Security Group  OpenSSL  Security  OpenSSH  Fortify scanning

Development environment

Grommet  GitHub  FOR1  eclipse
Thank you