OpenFog Consortium

“Fog! The Journey so far...”

Helder Antunes, OpenFog Chairman – Cisco Sr. Director
https://www.youtube.com/watch?v=tuo5Pxc4w3c&feature=youtu.be
What is fog computing?

FOG COMPUTING
A system-level horizontal architecture that distributes computing, storage, and networking closer to users, and anywhere along the Cloud-to-Thing continuum
Why Fog?
It's necessary to run IoT, 5G and AI applications.
Why Fog? Smart Cities.

- Sensory aggregation & Telemetry
- Connectivity on demand
- Video Surveillance
- Power Management
- Traffic Management

Barcelona Project

- Aggregating multiple services in the cabinets
- **CAPEX and OPEX reduction for City and provide more opportunities to create new**

Cars/Buses/Trains/Police

- Onboard Monitoring
  - 4G
  - GPS/Asset
  - Surveillance
  - VoIP
  - Entertainment WiFi
  - Autonomy

Stations

- Passenger Safety
  - 4G
  - Surveillance
  - Counting/Warning Analytics

Streets/Tracks

- Safety/Risk Protection
  - 4G and/or WiFi Mesh connected
  - Video storage
  - Monitoring
  - Link to traffic management
  - Parking
  - Drone Ground Support
Why Fog? Connected O&G.

Upstream

• Rig/Well In a Box
  • Employee WiFi
  • Remote Expert
  • Surveillance/Sensors/Alarms
• Oil Sands Operations
  • Pit Surveillance
  • Heavy Eqpt Monitoring
  • Anti-Collision

Midstream

• Remote Monitoring
  • Surveillance
  • Sensor Monitoring/Alarms
• Intelligent Transport
  • GPS and Asset Tracking
  • Real time visual display
  • VoIP Communications

Downstream

• Intelligent Station
  • PoS backup
  • Surveillance & Access Control
  • Local WiFi
  • Power Management
These scenarios require **SCALE**

- **Security**: Additional security to ensure safe, trusted transactions
- **Cognition**: Awareness of client-centric objectives to enable autonomy
- **Agility**: Rapid innovation and affordable scaling under a common infrastructure
- **Latency**: Real-time processing and cyber-physical system control
- **Efficiency**: Dynamic pooling of local unused resources from participating end-user devices
Our approach is analogous to that of the Internet 20 years ago... with game changing impact

TCP/IP
A standard and universal framework to distribute packets

OpenFog Reference Architecture
A standard and universal framework to distribute resources and services plus Manage, orchestrate, and secure the distributed resources and services

Changing the way the world works via standards-based frameworks
Three friends, having a beer over lunch, on a lovely afternoon in Princeton, came up with the same conclusion! A consortium was needed and thus started the journey...
Building the necessary interoperability of fog-enabled applications requires a collaborative approach.

Launched November 2015
OpenFog mission

Mission Statement:
To drive industry and academic leadership in fog computing architecture, testbed development, and interoperability and composability deliverables that seamlessly bridge the cloud-to-things continuum.
OpenFog Consortium
A growing, global ecosystem of fog experts

Founders
ARM
Dell
Microsoft
CISCO
Intel
Princeton University

Contributing Members
AT&T
Foxconn
Hitachi
ZTE

Affiliations
Barcelona Supercomputing Center
ComSoc
IoT Acceleration Consortium

57 members strong, headquartered in 15 countries as of June 2017
OpenFog Consortium goals

Technology
Develop, Solve, Identify & Create

Innovation
Foster, Initiate, Provide & Influence

Education
Gain, Promote, Evangelize & Educate
Global Consortium with Regional Focus

BRIDGING THE CLOUD TO THINGS CONTINUUM
What have we done so far?

- Established a common definition of fog computing
- Published the OpenFog Reference Architecture
- Formed three geographic regions: Japan, Americas and Greater China Region
- Grew awareness of fog computing through workshops, speaking engagements, content
- Consolidated market research for fog computing from university members
- Established internship matching program for universities – industry members
- Launched several technical & marketing workgroups, with charters and deliverables
- Signed affiliation agreements with IEEE, Barcelona Supercomputing Center, and IoT Acceleration Consortium; Formed a technical liaison with the OPC Foundation
- Grew fog ecosystem to 57 organizations from 15 countries
- Developed and published the OpenFog Reference Architecture
October 30 – November 1, 2017
Santa Clara, California

3 days. 4 tracks. 1 global conversation on fog computing.

Jointly presented by

Call for speakers: www.fogworldcongress.com
“The best way to predict the future is to invent it.”

- Peter Drucker
Thank you!