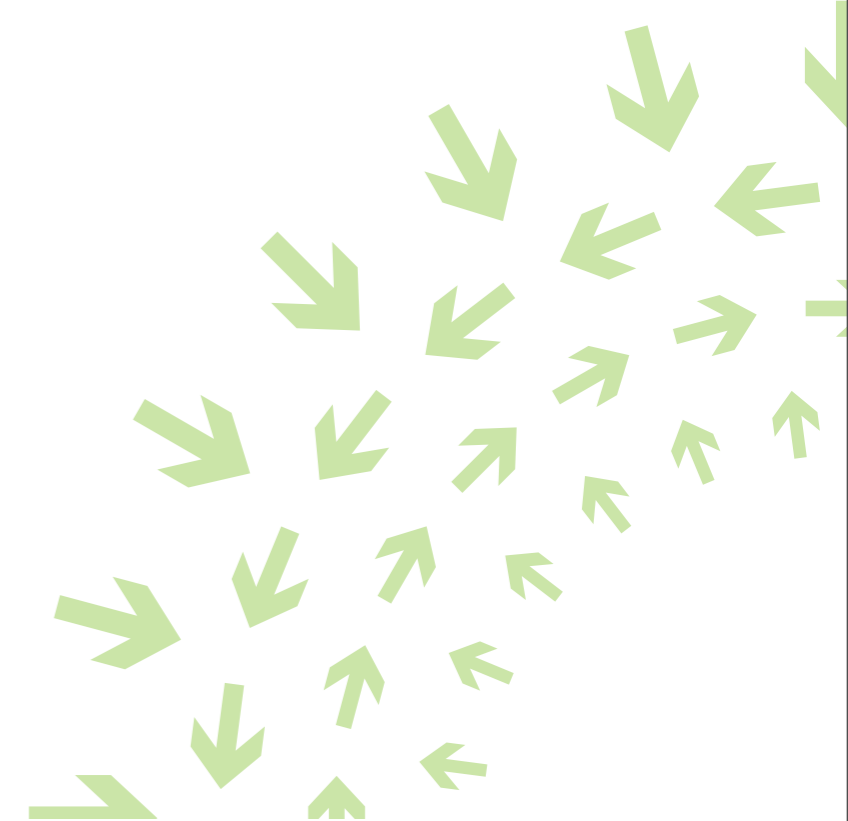# The Open Compute Project
IEEE 21st Symposium on HOTI

August 21st 2013

1. OCP recap
Timeline

- **Q4 2010, origins...**

  - 'Seems like it's a good idea for the industry.'

- **Q2 2011, the announcement...**

  - Facebook open sources datacenter designs sharing 24% capX gains, 38% energy efficiency gains.

  - OCP Summit #1, June 17th 2011. Announced the intent to create a 501(c).

- **2H 2011, foundation definition and charter...**

  - October 4th 2011 Facebook creates a 501(C) non-profit with Arista, Goldman, Intel, Rackspace.

  - OCP summit #2 held in NY announcing the foundation to champion open source hardware with the goal of accelerating innovation across the scale compute space.

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1. OCP recap
Timeline

- **1H 2012,** foundation's strategic definition and execution.
  - Identification of the incubation committee and its members.
  - Identification of the 6 technology working groups and associated project chairs.
  - OCP summit #3 in San Antonio: building community.
- **2H 2012,** building the foundation's pillars.
  - Community, Economics, Institutional support.
- **Q1 2013,** OCP summit #4.
- **Q2 2013,** Engineering workshops, hackathons, Solution Provider workshops

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2. How does OCP create value?
Measuring open computes success

- We think of two levers when we measure OCP.
  - Technology **contributions** e.g. Intel's SiPho contribution.
  - **Adoption** of open compute product e.g. Rackspace, Riotgames.

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2. Contributions

The contribution pipeline is considered successful

- Full stack; rack, compute, storage, interconnects, networking.
- January summit we received 10 outside contributions.

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2. Adoption

The adoption pipeline is considered successful

- Rackspace, Riot Games are the public examples.
- There are many other examples of corporations adopting or testing OCP gear (Finserv and scale compute markets).

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3. What is OCP's operational framework?

This framework enables the foundation to pull the contribution and adoption levers

- Community is pillar #1.
  - without community you have nothing.
- Economics is pillar #2.
  - the foundation must create economic value.
- Institutional support is pillar #3.
  - Very important in the long term. Complex and resource intensive.

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Wednesday, August 21, 13

3. Community enablement

Tools, Knowledge sharing, self-organizing community.

- Tools
  - Kicad, Grabcad, Upverter, wiki, spec's.
- Knowledge sharing
  - Engineering workshops, discussion groups, feedback loops.
- Self-organizing communities.
  - OCPT, OCPT, Project Scorpio

3. How do we measure community?

Keeping it simple

- OCP summit #4 had;
  - **1500** attendees, **3X growth** (nearly 8X growth from the first summit).
  - **6000** live stream viewers, **3X growth** from summit #3.
- 7 active working groups.
  - Developing charters and specifications, meeting regularly.
- OCP FB group has 5000 members.

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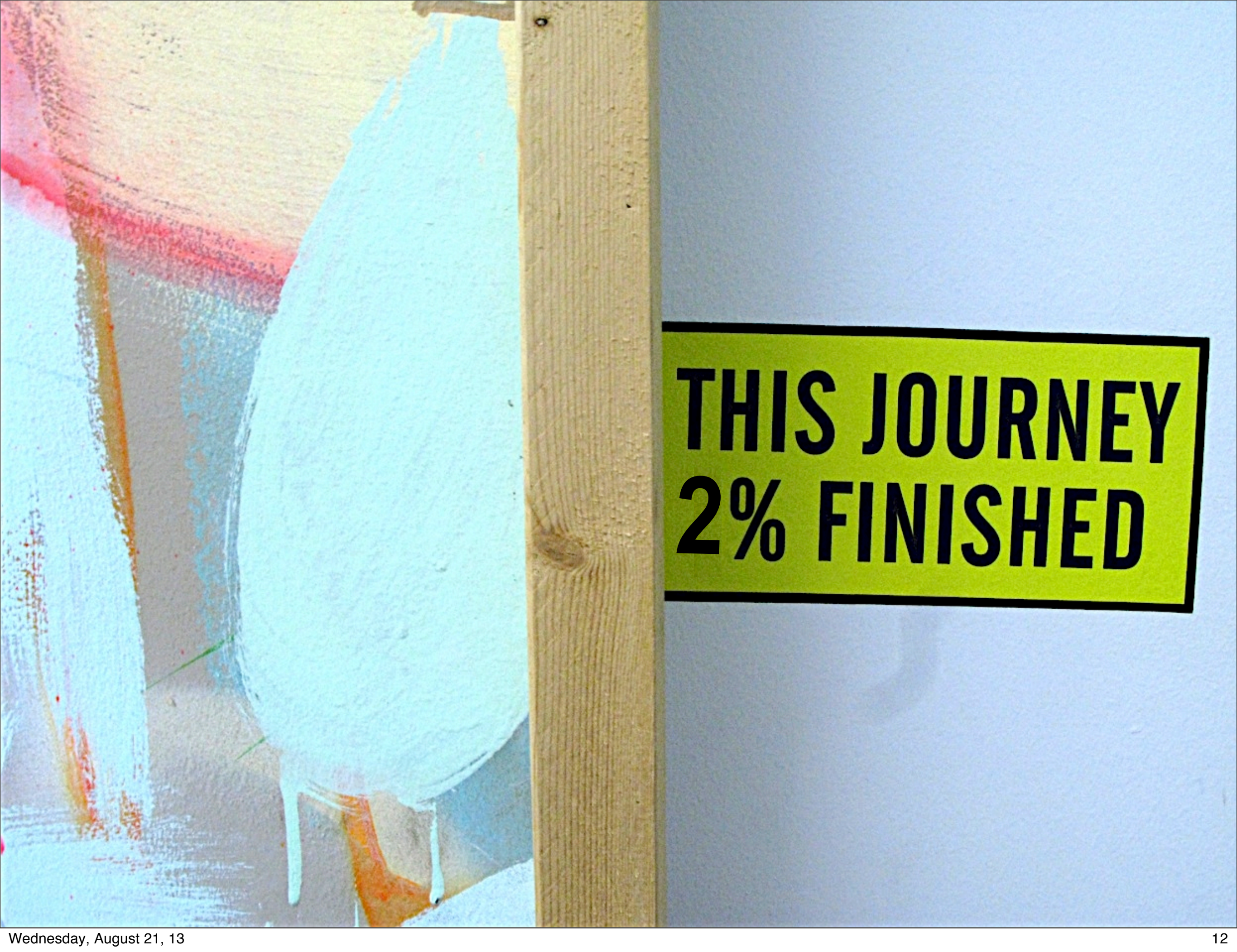Compute Project

4. Disaggregation & Interconnects

Value creation

- **H1 2012 architectural narrative:** The supply base, OCP and the VIO working group had started talking about the concept of *'disaggregation'*. The disaggregation concept was a first step to having an architectural narrative in the incubation committee.

- **Tangibles:** Disaggregating the power supply and disks was a first step (Open rack).

- **Challenges** (disaggregating IO is challenging):

  - Without optimized silicon for VIO chips the component costs for moving PCI NIC chip to the other side is high.

  - Using the same PCIe link for Flash VIO is a good idea, but adds further complications in terms of combining that with network I/O.

  - Market opportunity not material in the short term without real silicon rather than putting a bunch of chips on a board.

- **Sipho Contribution:**   Intel contributed the interconnect technology to allow silicon photonics which allows the possibilities of changing current system architecture.

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4. Disaggregation & Interconnects

Open Compute Networking Project

- The Mission of the Open Compute Networking Project is to create a set of networking technologies that are dis-aggregated and fully open allowing for rapid innovation in the network space.

- Open Switch Hardware

  - Silicon: Broadcom Trident II, Intel / Fulcrum, Marvell.

  - Speeds, Feeds, and Environmental's.

  - Frame Processor and add-in Board interface.

  - Switch Control Processor / CPU: x86, ARM.

  - Operating System Agnostic / Linux based.

  - Power supplies: input voltage, Watts, Efficiency … openrack and 19" Traditional enterprise.

- Form Factors: Leaf, Spine, Non-bladed, N 'U' Universal Form Factor - Openrack, 19" standard.

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THIS JOURNEY 2% FINISHED

4. Regional chapters
What has to happen in APAC for OCP to grow

- Build on the existing community both in volume and velocity.

- Drive economic value in the form of contributions and adoption.

- Build out a recurring sponsorship pipeline to enable the community to organize.

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3. The APAC story
OCP APAC is accelerating in volume and velocity

- Project Scorpio.
  - Competitors working together.
- OCPJ
  - Informal networks self-organizing.
- OCPT
  - Went from zero to 60 in less than five months.

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