Interactive Visual Orchestration With Curvature and Donabe

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Mentors:

Debo Dutta

Lew Tucker

- Office of the Cloud CTO
- OpenStack Summit April 2013 - Portland

Curvature and Donabe - Agenda

- How did we get here?

- What is Curvature?

- What is Donabe?

- Questions?
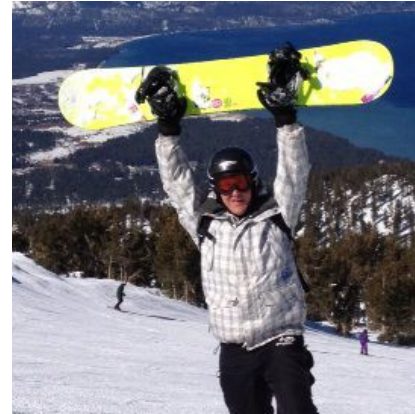
Speaker Background

- Software Engineering Interns in the Office of the Cloud CTO

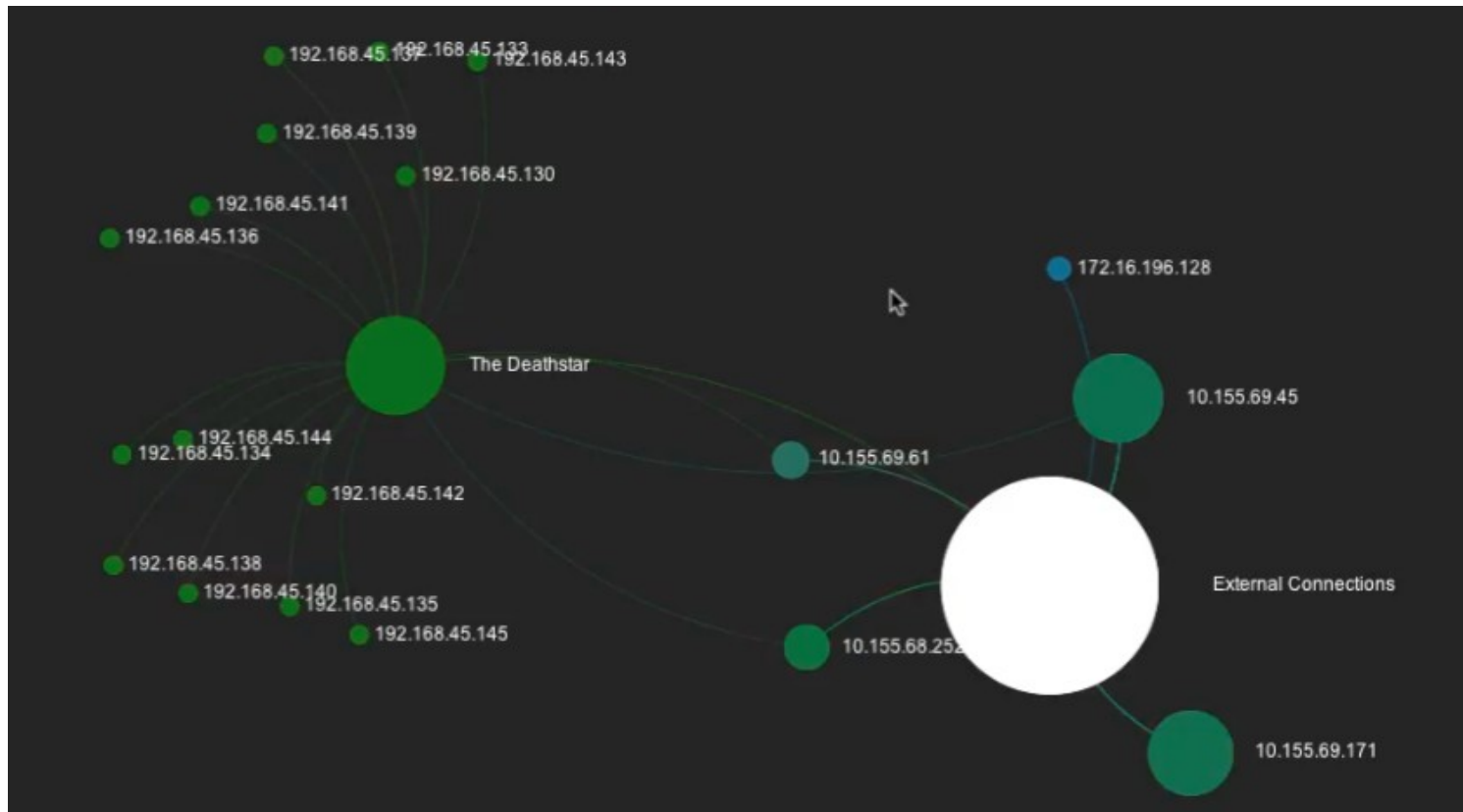Sam Betts   John Davidge   Jack Fletcher   Bradley Jones

- Computer Science Undergraduates
- University of Kent, Canterbury, UK

Curvature - Concept Work

- Early exploration of virtual network visualization

Curvature - Concept Work

- Even basic visualization can be very powerful for understanding your virtual network

- A system that can represent a virtual network visually and communicate it to the user is the first step

- What if we can make this work both ways?

How do users interact with clouds?

Amazon EC2

OpenStack Horizon

Curvature & Donabe

- Two services, one philosophy:

Make OpenStack Easier to Use
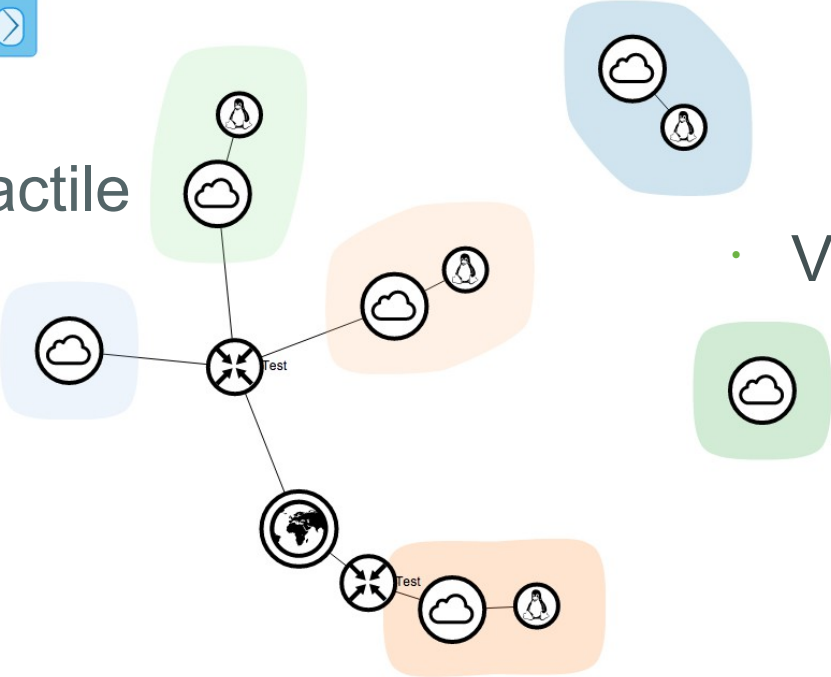
Curvature

- Interactive / Tactile

- Visual / Logical

- Extensible / Adaptable

Demo

Insert photo here

Curvature

Curvature
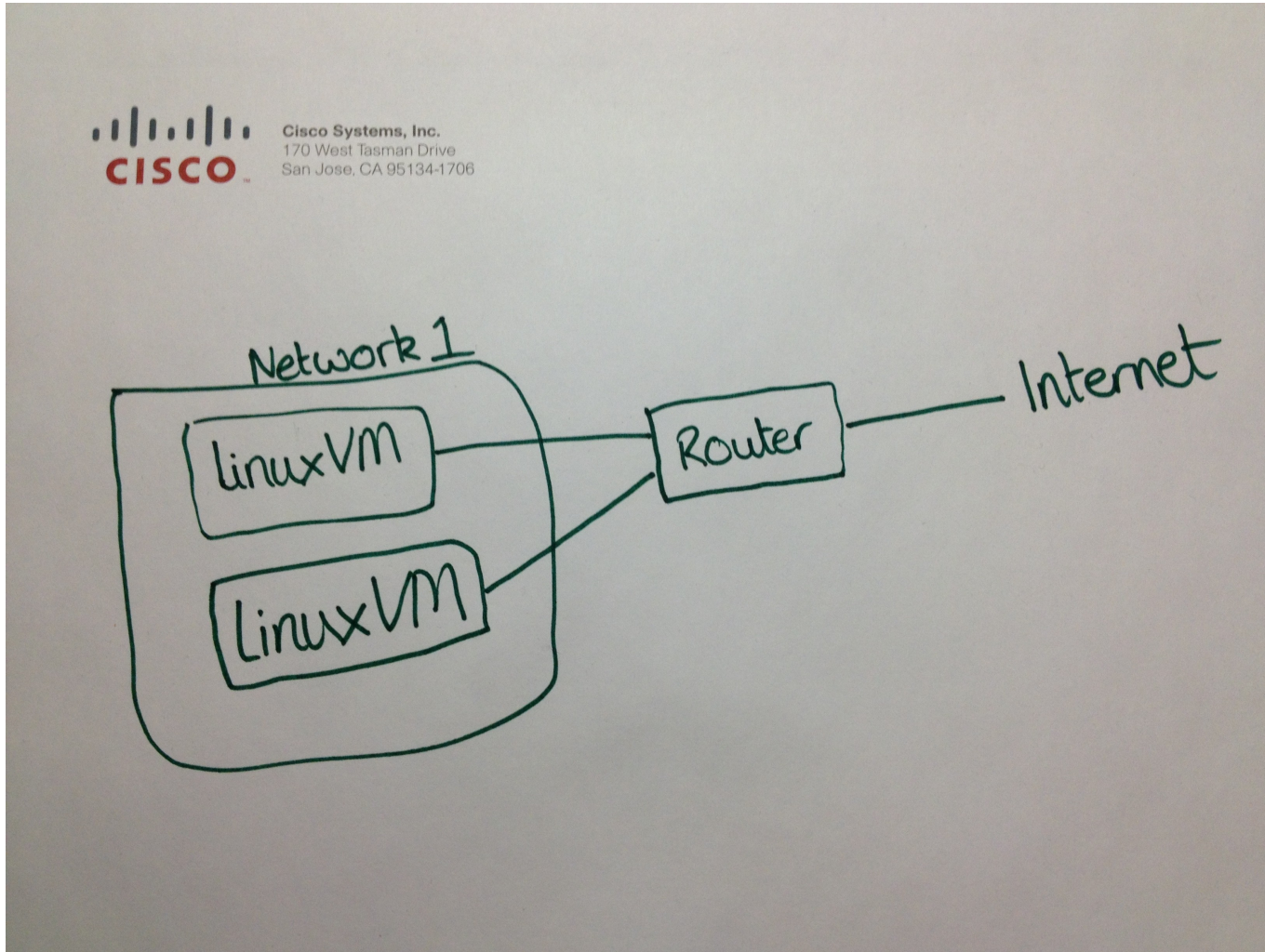
Curvature – Lessons Learned

- Visual network design turned out to be a great success in user trials within Cisco

- People using Curvature to interact with Quantum for the first time just *got it* – it took away the mystery of Horizon or the CLI

- Building complex application topologies became a trivial task. A need to exploit this by making these topologies repeatable was identified

Donabe - Origins

- First proposed at the Essex summit in 2011 by Debo Dutta and Rick Clark

  - https://wiki.openstack.org/wiki/Donabe

- Defines a system of application 'containers' that describe the virtual topology of an application

Donabe – Container Structure

- A container can have zero to many

  - Routers (Quantum)

  - Networks (Quantum)

  - Virtual Machines (Nova)

  - Containers (Donabe)

Donabe – Container Structure

- Endpoints

  - Any node within a container can be defined as an endpoint

  - Allows connectivity to nodes outside the container

Donabe

- Completely separate from Curvature
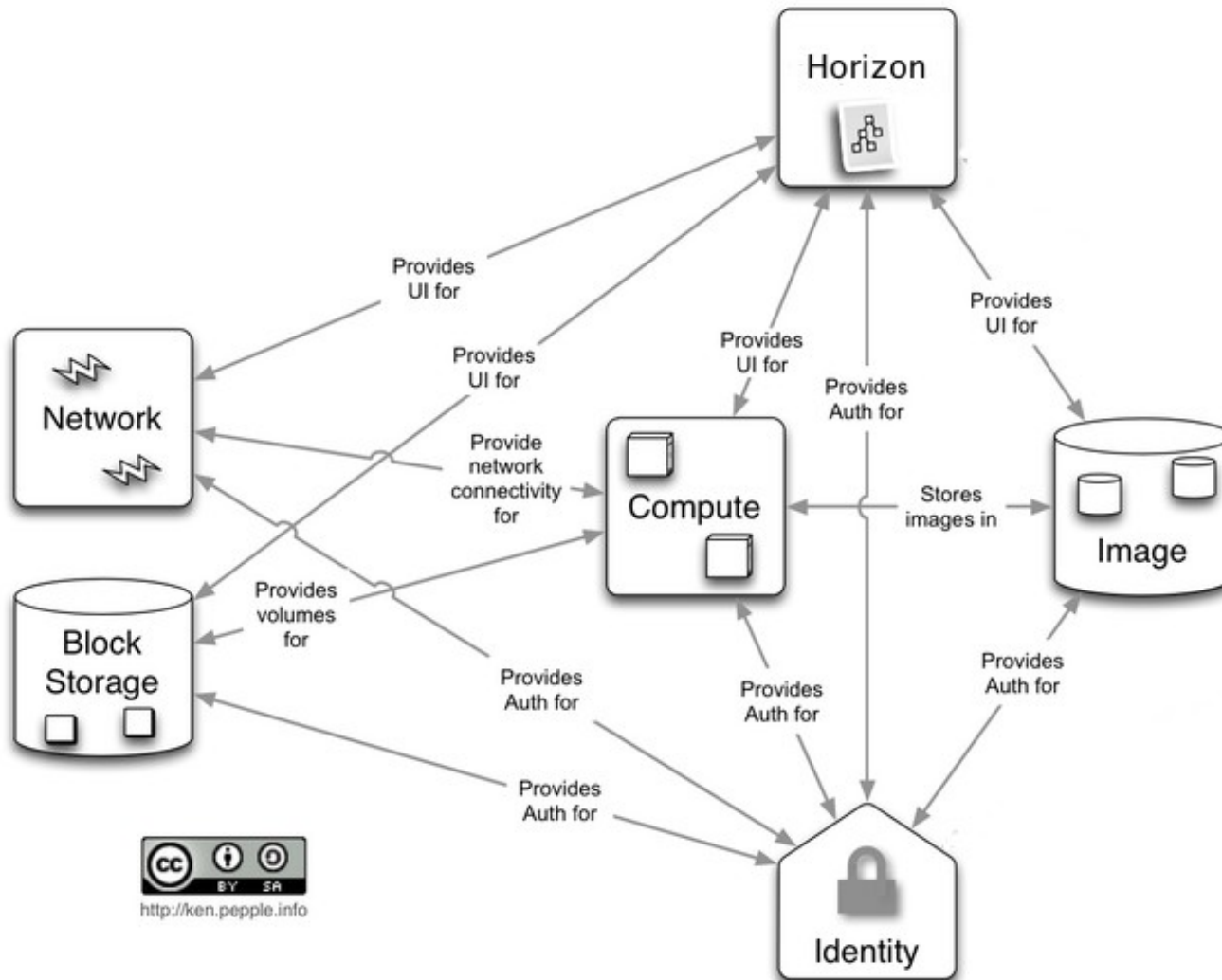
- Interaction via REST API
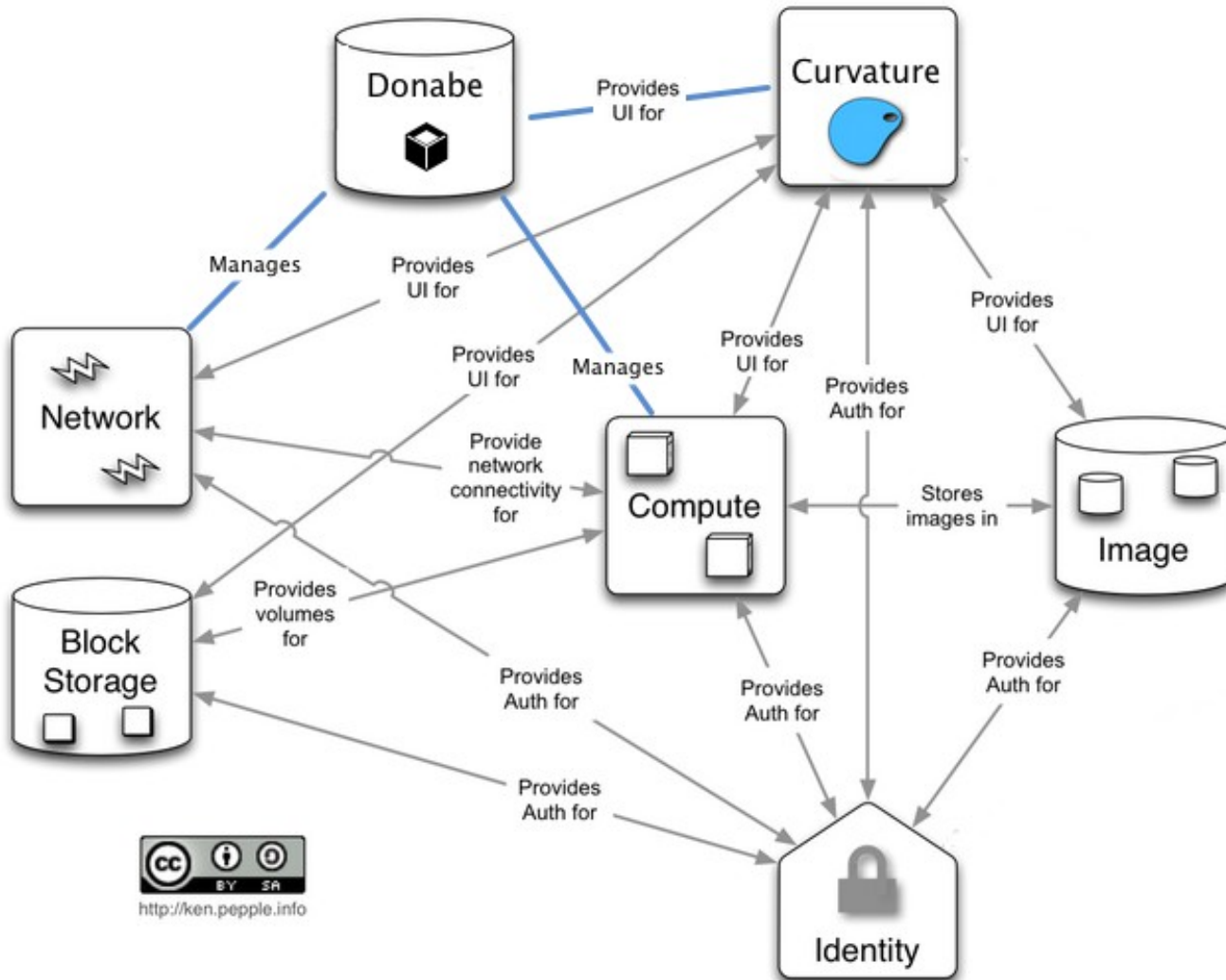
Demo

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Curvature with Donabe

Current Conceptual Architecture

New Conceptual Architecture

Planned Features

- Curvature

  - Saving & Sharing Network Designs

- Donabe

  - Modification of live containers

- Meta-data Service
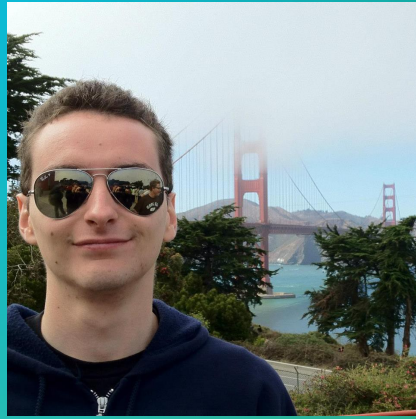
In Summary

- Curvature

  - Designed to be extensible

- Donabe

  - Designed to work with services like Curvature via REST API

- To be open-sourced soon

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Thank you

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