



# Cloud Computing

## Session 4 – Project Ideas

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# Where and How to Get Cool Ideas for Projects?

- Disrupt Events by TechCrunch
  - » <https://techcrunch.com/events/>
  - » Check their site for ideas
- Identify general (business) area you want to focus your project on
  - » e.g., healthcare or other industries, traditional tech cloud topics (performance, backup, virtual network) or other tech-driven topics (social, mobile, analytics, IoT, etc.)

# How to Form a Team?

- Interview your colleagues
- Reflect on how much implementation work you have done in the past (LOCs)?
- Which programming languages are you familiar with? (1-10)
- What courses are you taking?
- Team sizes should be 2-3

# Sample Ideas

- Build an underlying framework and P2P network to support your application
- Applications functionality developed on top of the framework & P2P network can be diverse and include many sub-services
  - » Applications for healthcare or other industries (recommended)
  - » Making the web editable by annotations
  - » Find ingredients for recipes and buy them
  - » Virtual networks that span cloud providers for seamless workload management
  - » LinkedIn stalking (Dosi.io)
    - <https://techcrunch.com/2013/04/28/dos-io-makes-linkedin-stalking-better-with-info-from-github-angellist-crunchbase/>
  - » Gift registries
  - » Facebook radio and/or newspaper
  - » Operational tools for software-defined clouds
  - » Video transcoding service
  - » Identifying photo duplicates
  - » Track unknown phone number

- Applications for Healthcare, Banking and Financial Services, Consumer Goods, Legal, Technology, etc.
- Sample applications will be discussed in class
- Think framework and marketplace to be able to scale the use of your application

# Making the Entire Web Editable by Annotations

- Imagine going to a conference and listening to all speaker talks. Where do you take notes?
  - » Phone (Notes app), computer etc.
- Imagine visiting a web page and seeing what your friends have commented on that page?
- Image building a collage of information
  - » Videos, pictures etc.

IDEA: take notes on a web page, save them in cloud, share with our friends. Where notes can be text, picture, videos etc.

- Cloud angle: the information is stored in cloud
- Companies interested: Facebook, Amazon
- Recommended team size: 2-3 people

# Find Ingredients for Recipes and Buy Them

- Imagine you find a new recipe and want to make it
  - » How do you find ingredients and buy them?

IDEA: a mobile application that uses cloud backend to find the closest markets with available ingredients

- Cloud angle: search is performed on cloud
- Companies interested: Food processing
- Recommended team size: 2 people



- Imagine if you want to run an application across cloud providers, and want to maintain your own IP address space across VMs. A virtual and secure overlay.

IDEA: Create GRE tunnels in VMs so that they can connect to each

- Cloud angle: obviously!
- Companies Interested: Cloud providers
- Recommended team size: 2-3 people



- Imagine browsing a user's resume on LinkedIn. User lists specialties as open source projects like github.

IDEA: crawl the web to find the open source/open projects for that person

- Cloud angle: crawling is performed in cloud. Need some pattern matching
- Companies interested: Monster, Hiring companies
- Recommended team size: 2 people

- Imagine a newly wed couple or a family who had a baby, and want to create a gift registry.
- Currently, one picks up items from that registry and purchases them. However, some items are too expensive.

IDEA: People 'pledge' and contribute money towards purchasing an expensive gift

- Cloud angle: Management of gifts and registries done in cloud
- Companies interested: Retailers
- Recommended team size: 2-3 people

- Imagine that you are driving and want to listen to a personalized radio.

IDEA: Create a mobile phone application that tells you political, social, geeky stories that your friends have posted via audio or a facebook news paper.

- Cloud angle: browser your friends feeds, gather links posted by them, group them into topics, covert them into audio headlines (or news paper feed)
- Companies interested: Aggregators
- Recommended team size: 2 people

# Operational Tools for Software-Defined Clouds

- Increasingly, compute, network, and storage are being delivered as software. Operational tooling for such networks do not exist.

IDEA: Run Tanzu on OpenStack, and develop operation tools for debugging problems as they arise.

» Example: is virtual network configured properly

- Cloud angle: obviously!
- Companies interested: Cloud providers and solution builders
- Recommended team size: 2-3 people

- Imagine having to transcode videos (for mobile phones, desktop etc.)

IDEA: Build a video transcoding service

- Cloud angle: transcoding done in Cloud
- Interested companies: kind of a solved problem, but there may be some
- Recommended team size: 2 people

# Identifying Photo Duplicates

- Imagine taking a lot of photos. How to identify duplicates efficiently?
- Image you and your friend visiting same place at different time. How to identify best shots across friends for the same venue?

IDEA: Build a image comparison service

- Cloud angle: done in cloud
- Companies interested: News, media companies, social networks
- Recommended team size: 2-3 people

# Centralizing Electronic Medical Records (EMRs)

- Imagine going to different healthcare providers, each maintain their own electronic record system

IDEA: gather records from different health care providers and store them at one place

- Cloud angle: all information is stored in cloud, oauth, etc.
- Companies Interested: Healthcare providers, Apple is doing it right now
- Recommended team size: 3 people



- Imagine receiving a call from an unknown number
  - » 100 billion phone numbers in the world
    - $10^9 \times 100$  (country code)

IDEA: Scavenge web to gather information about phone numbers, and display social information about the number (e.g., twitter feeds, fb photos, etc.)

- Cloud angle: crawling is done in cloud
- Companies interested: Telcos
- Recommended team size: 3 people