Scalable Secure Printing

Applying Web Ideas to Printing
in the (public|private|hybrid) cloud

Me

- Product Manager at Atlassian

- Previously Australian Uni, Yahoo, Google

- Search / Information Systems

- Hacker

Sherif Mansour
@sherifmansour

Someone told me that Atlassian is really a t-shirt company disguised by selling software. Just emptied my cupboard: #fb

Single Print Destination

- Highly Scalable Print Destination

- Intuitive User Centric Print Solution

- Follows the user, wherever they go

- Client and Server Agnostic
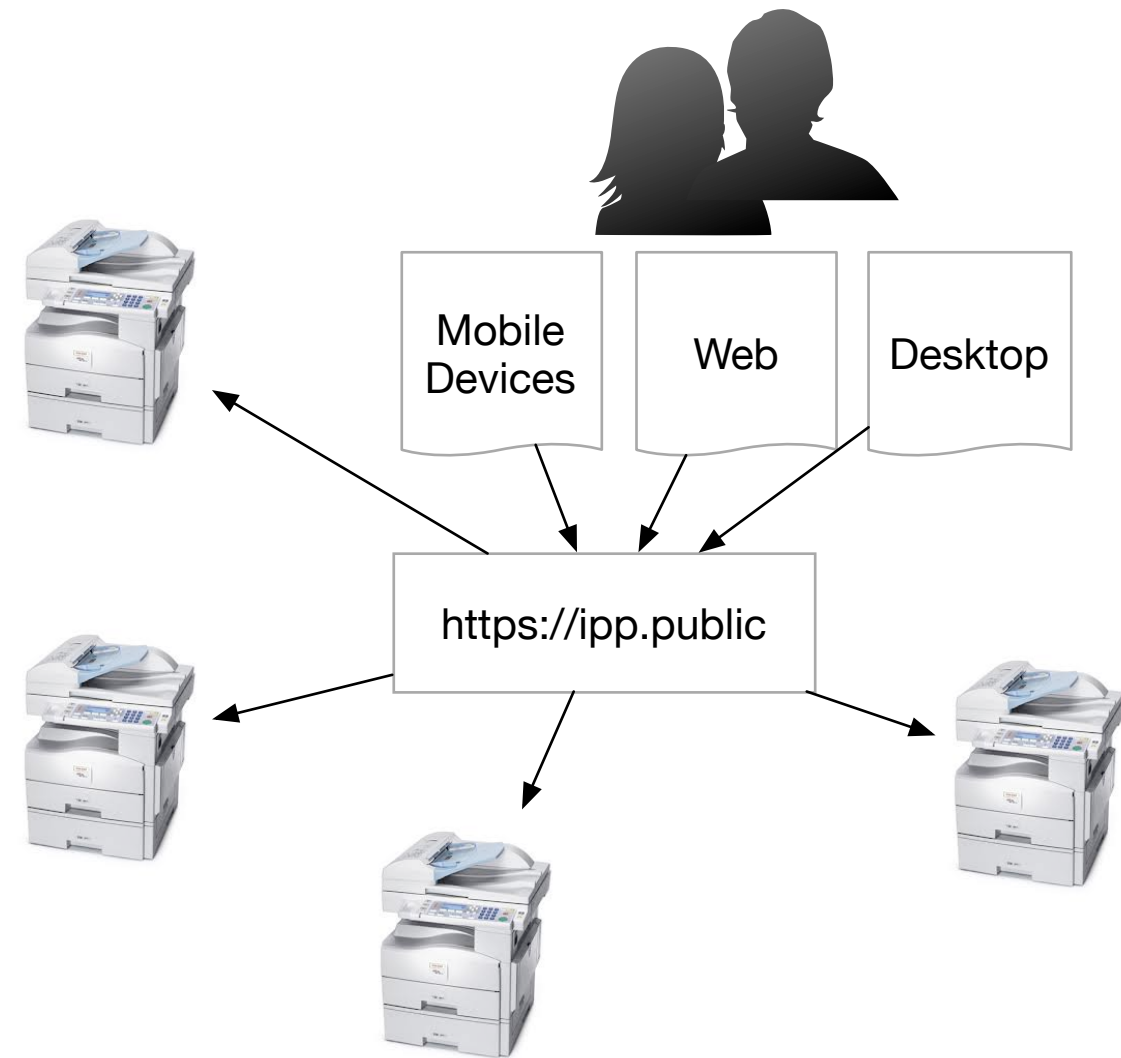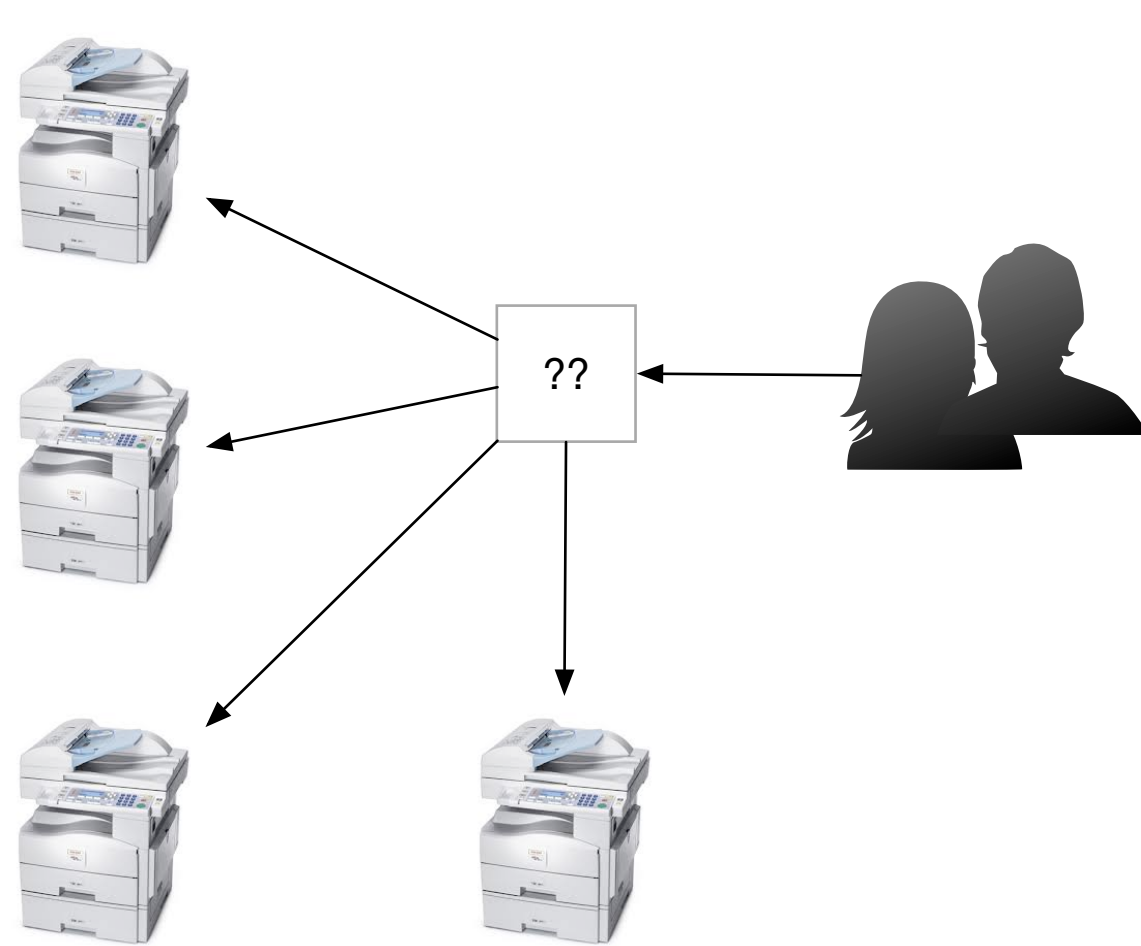
- *Importance of User Experience*
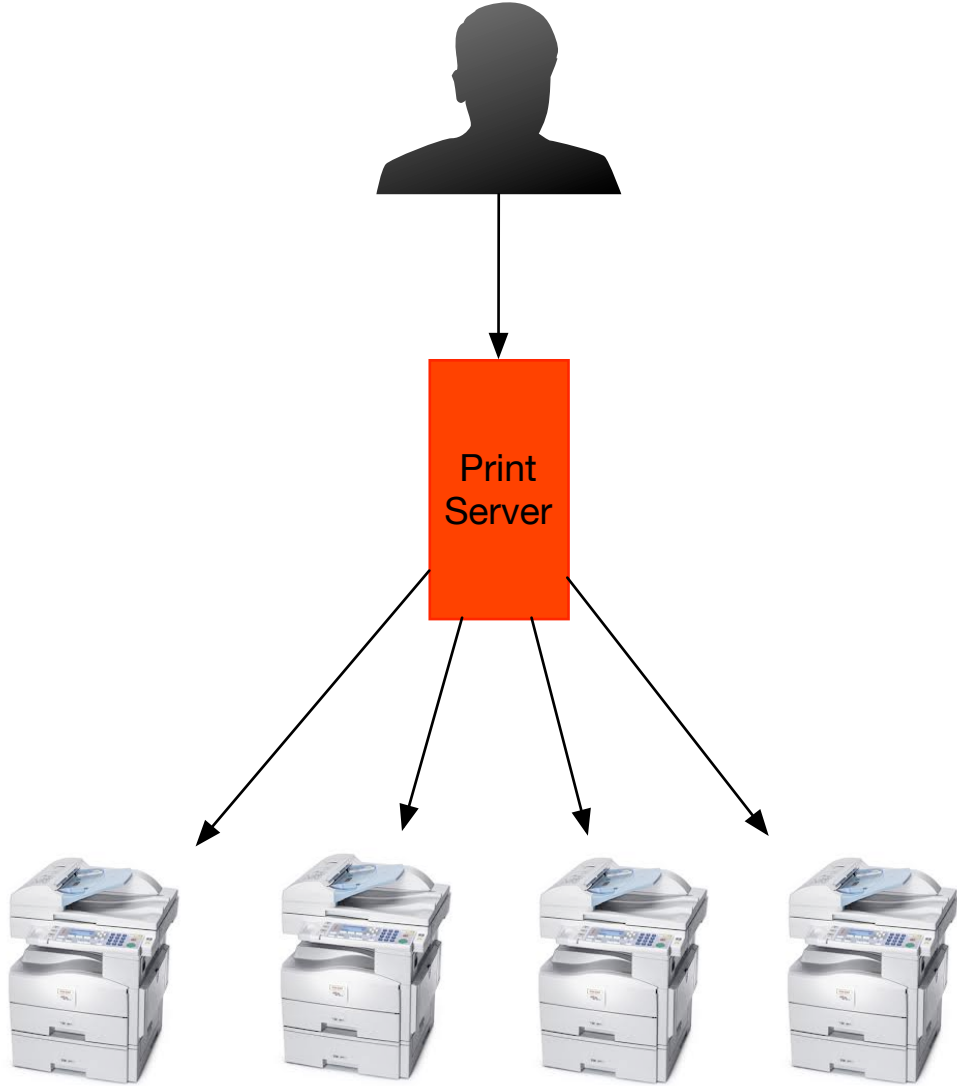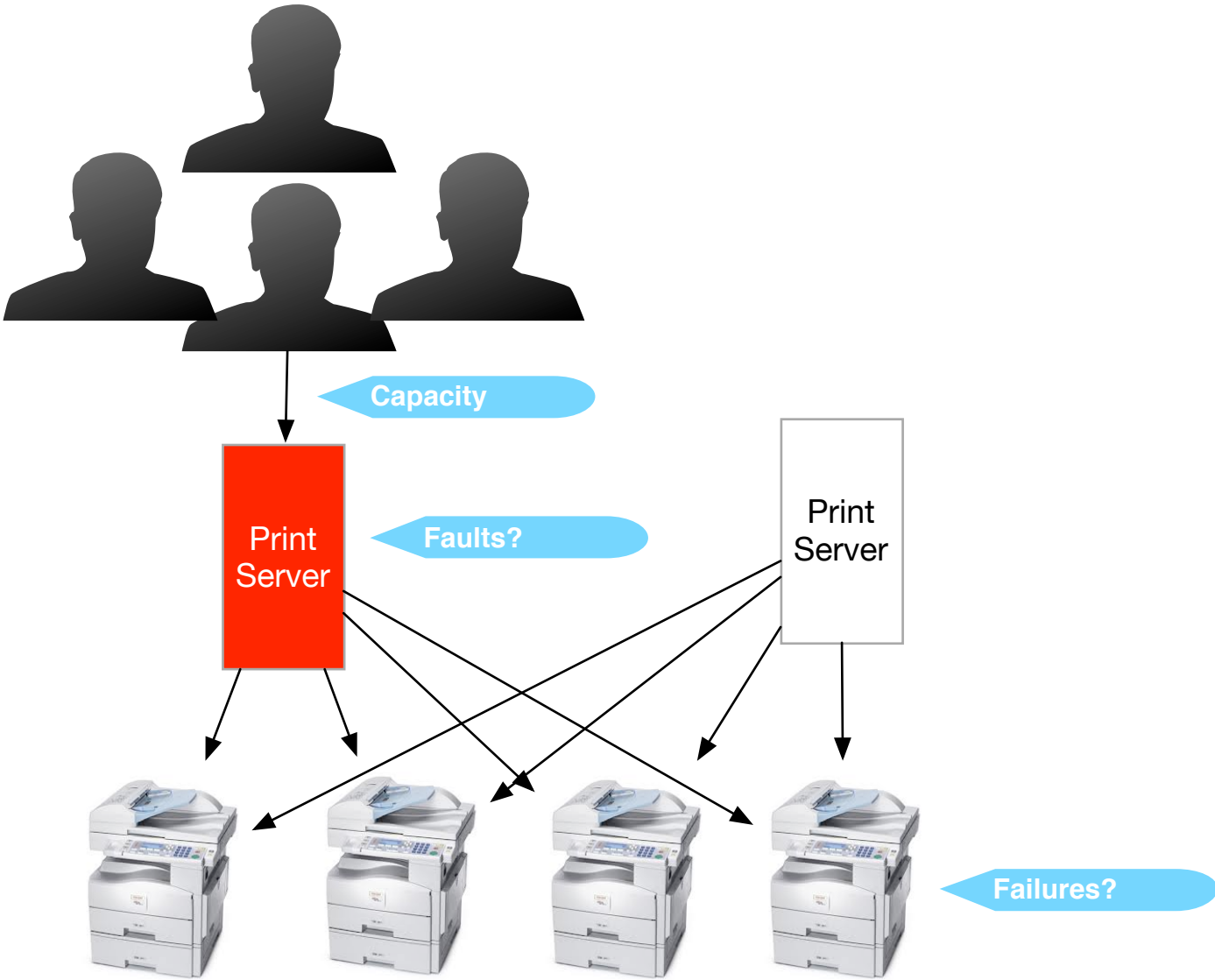
Customer Problems

- Surface print destinations to users, barrier to entry

- How to distribute print jobs to the fleet.

Customer Problems

??

Mobile Devices

Web

Desktop

https://ipp.public

Horizontal Problem

Capacity

Faults?

Print Server

Print Server
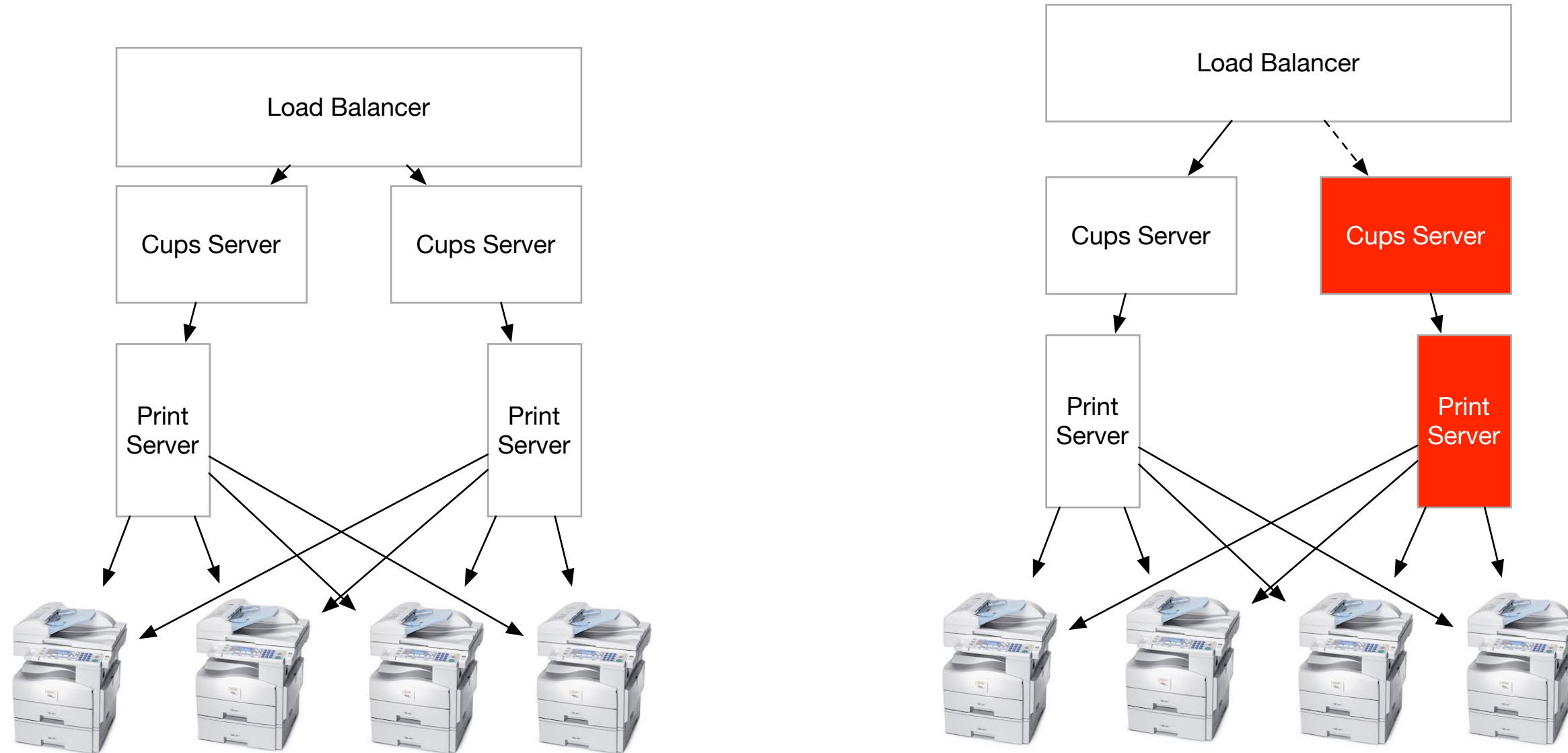
Failures?

Print Server

Horizontal Problem

- Create an "elastic" service

- Distributed service that is fault tolerant

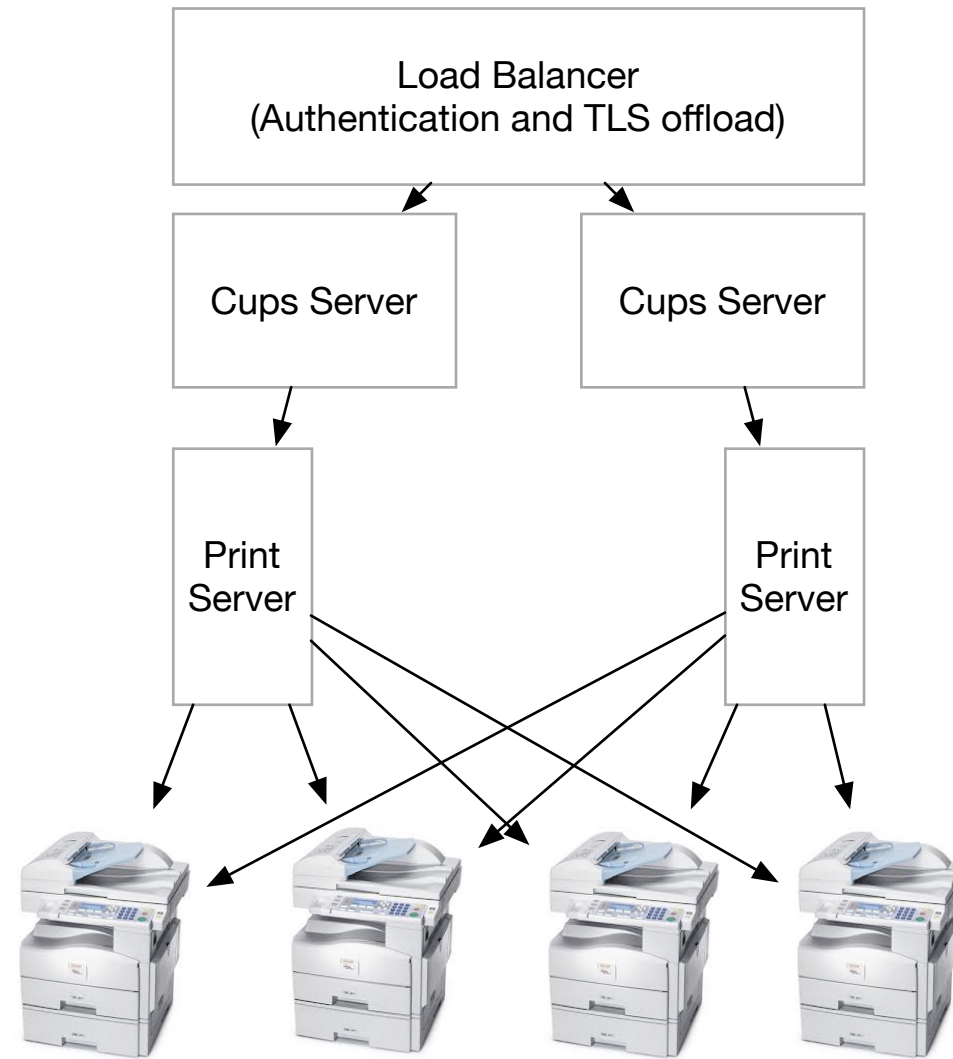Built it fast, make it scale.

Horizontal Problem

Cloud Printing

- No SMB - Sorry SMB.

- Have to think "Web First"

- Consistency in User Experience, being "Single Print Queue"
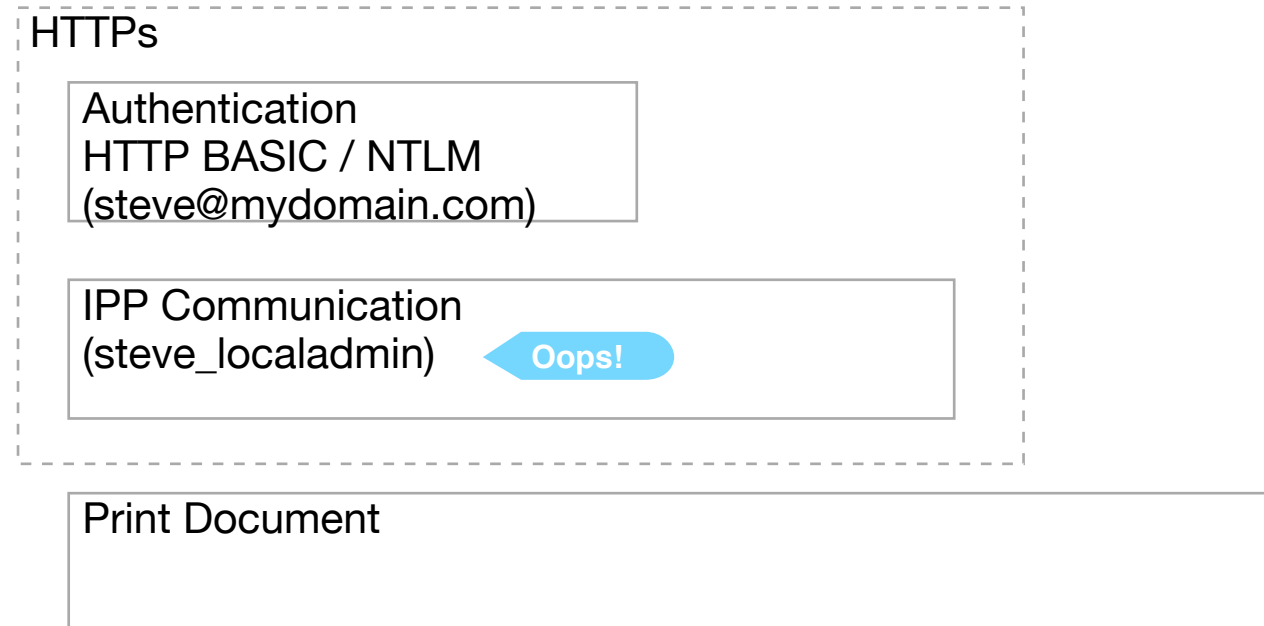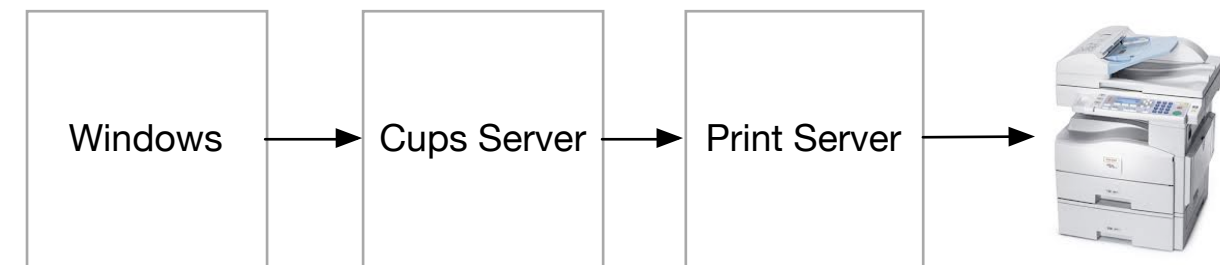
- Wrapped IPP in HTTPs

Cloud Printing

IPP Wrapped in HTTPs

- Windows in particular, highlighted that IPP communication was outside of the HTTPs packets, these things weren't combined.

- Print document lived from Desktop to Printer in general, so we try and mimic that.
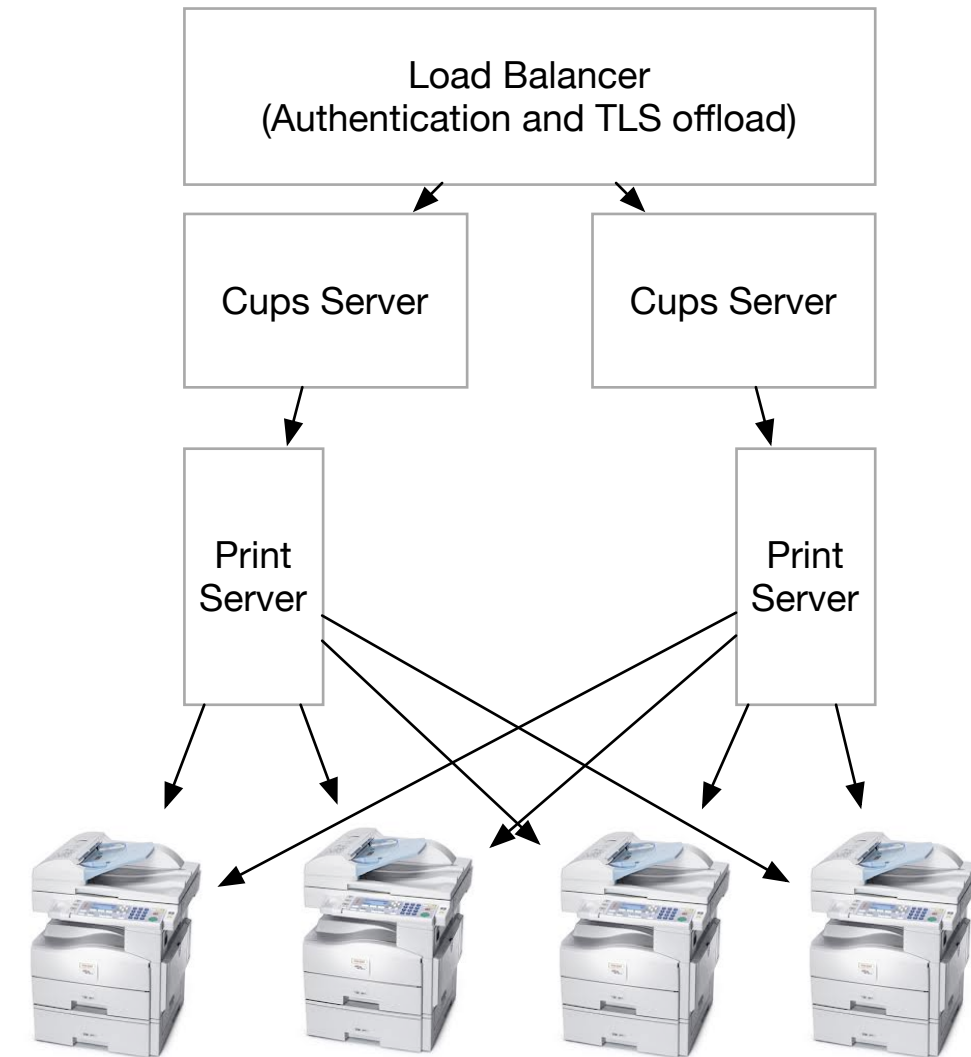
Cloud Printing

- Load Balancer / App Director does edge work, such as TLS offload and Authentication

- CUPS selected as the primary print service with some modifications

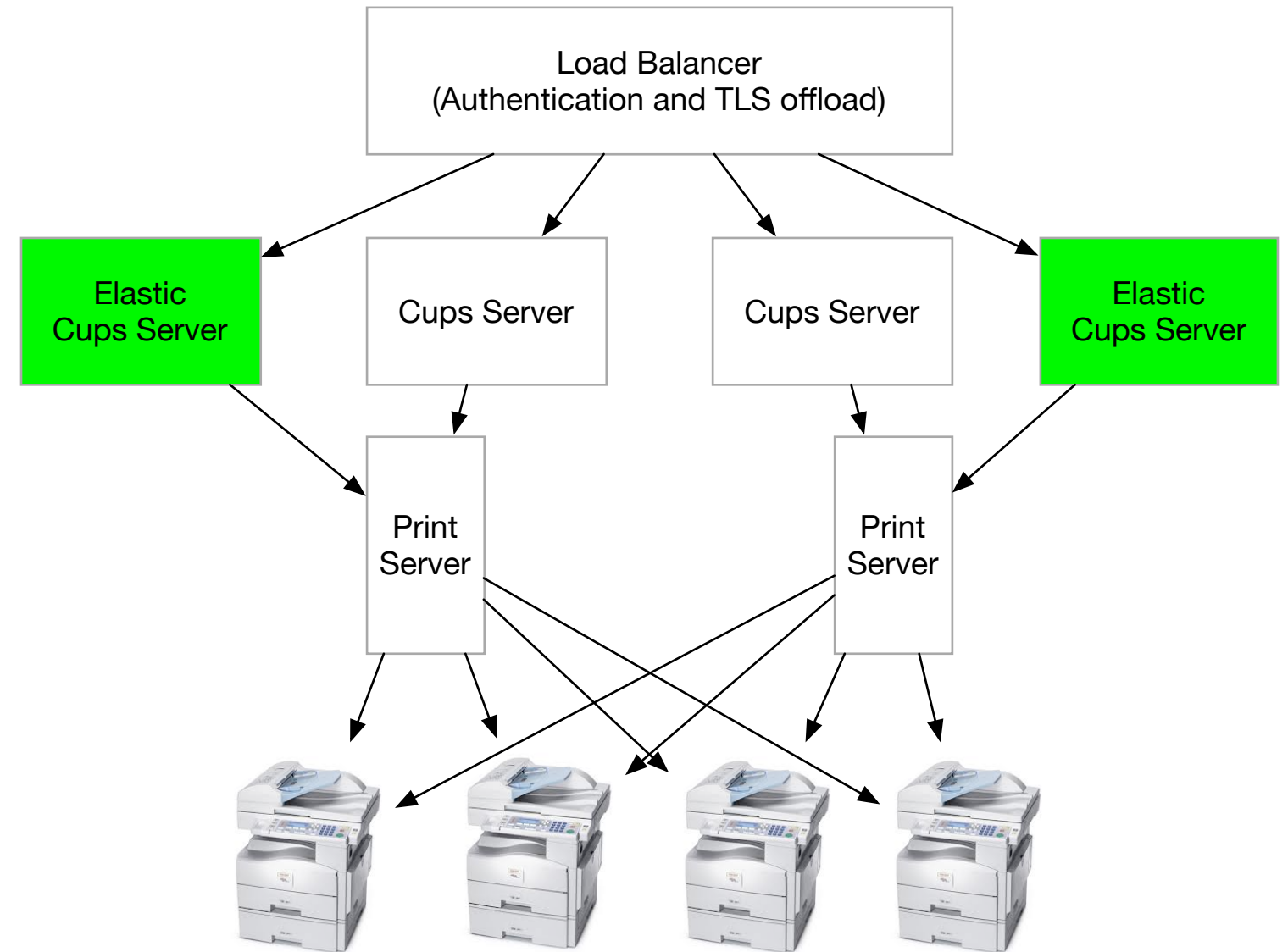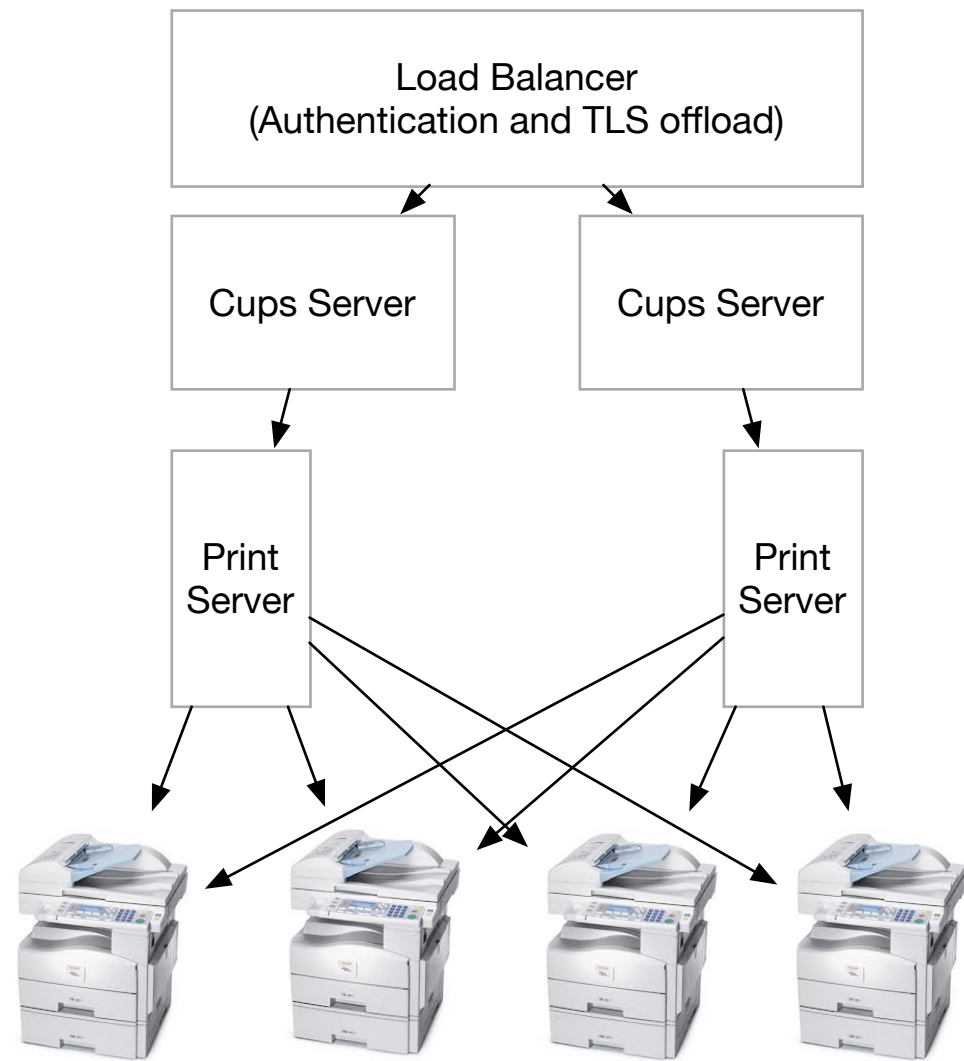- Out of the box, drop in destination
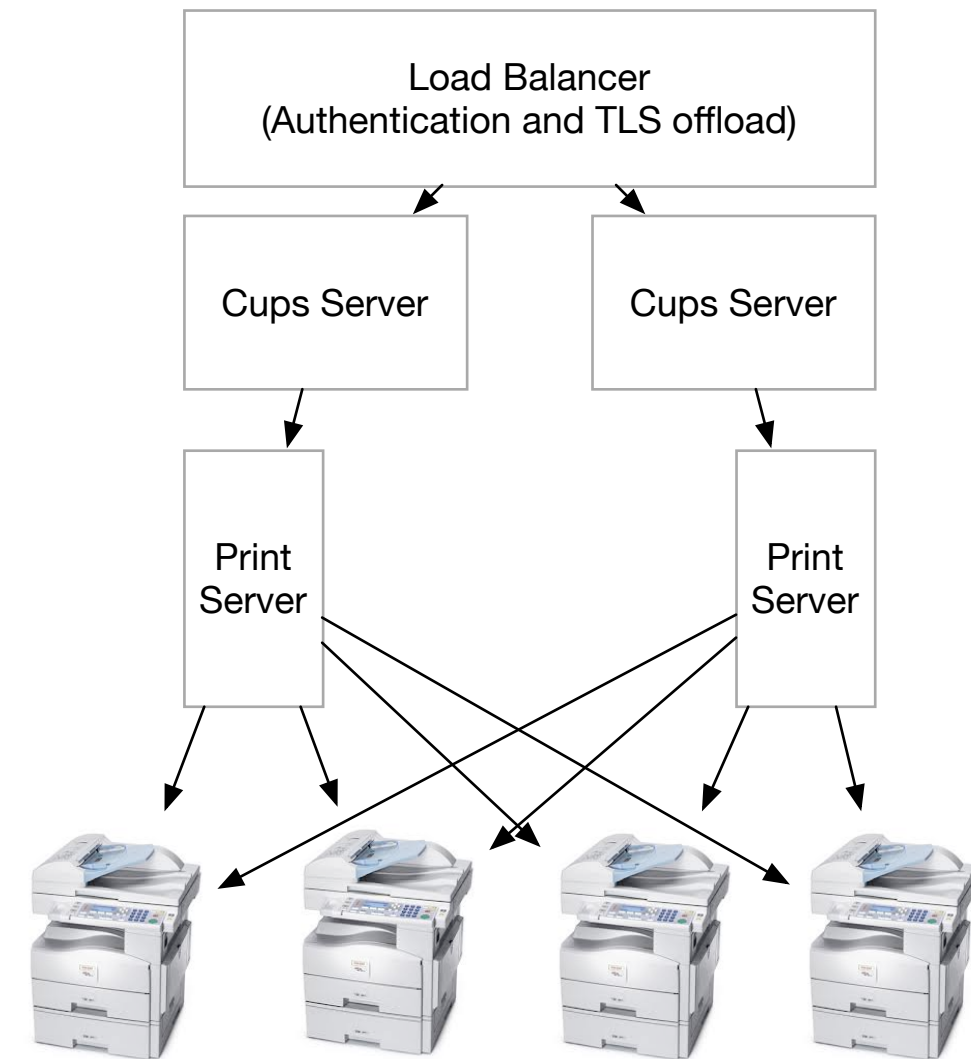
Cloud Printing

- CUPS wasn't 'shared' due to it's scale (yet), so we push fast.

- Custom cost recovery backend

- Configured as standard destinations in CUPS

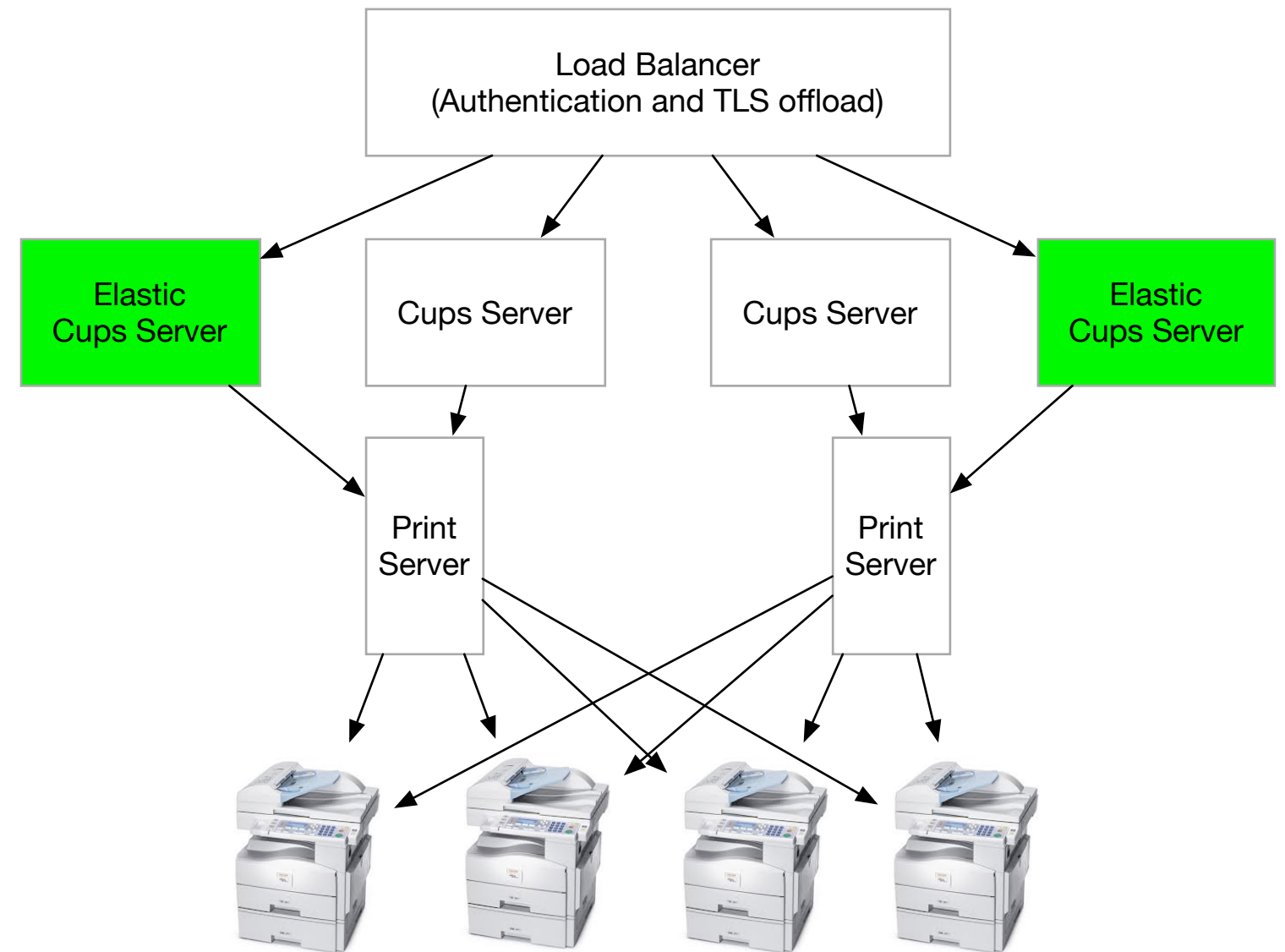- Cups configured really, as the highly scalable robust frontend to the traditional cost recovery
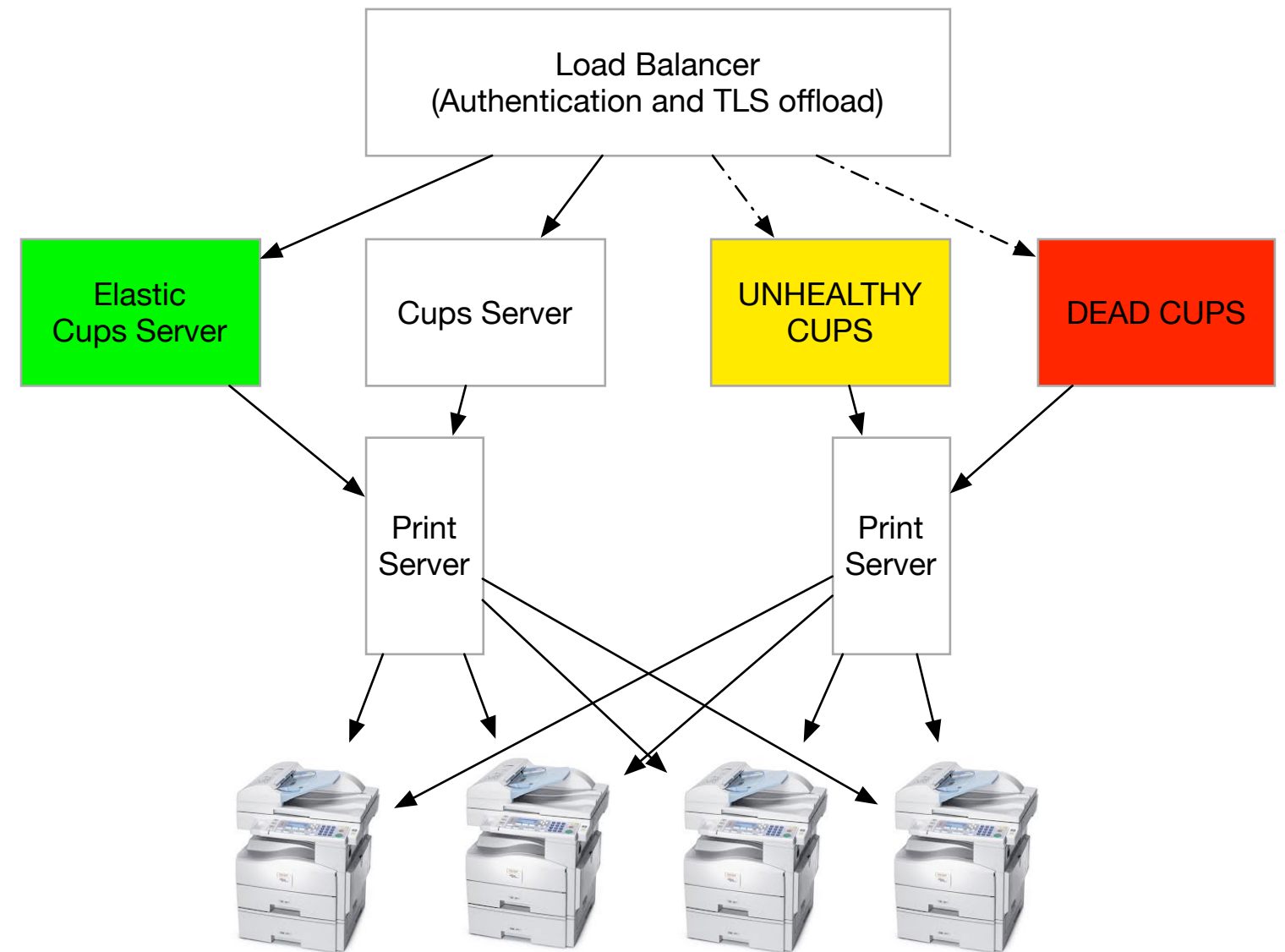
Cloud Printing

Cloud Printing

- Scale up, adding services as required

- Scale back, drop servers off to reduce the spend on this layer

- No need for CUPS to be on premise, this can scale anywhere including geographically.

Load Balancer
(Authentication and TLS offload)

Elastic Cups Server

Cups Server

Cups Server

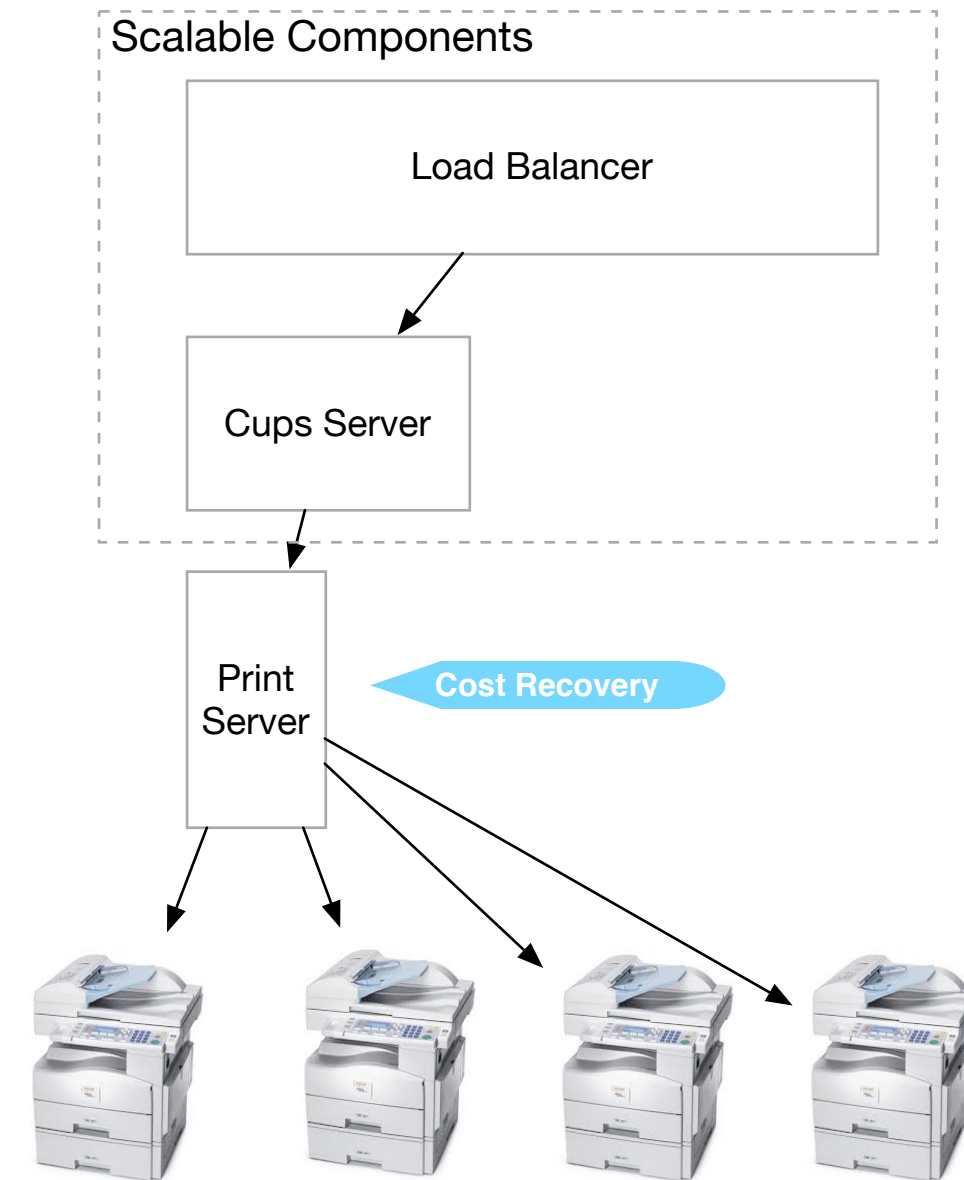Elastic Cups Server

Print Server

Print Server

Cloud Printing

- Health Monitoring allows for the ability to prune unhealthy systems

- Immediately remove dead servers

- Kill unneeded servers

Summary

- Ability to snap pieces in and out.

- What did we learn?

- Web Scalability and Printing? Best Friends?

- No new ideas!

- Open Source

Built on Open Source

- Built on Linux

- App Director could be Squid, or other open firewall tech

- Once the architecture is bedded down really easy to deploy into the cloud

- Tests really show responsiveness to performance

Contact / Questions

- @steveathon on Twitter

- steve@stevenking.com.au

- Slides will be shared later