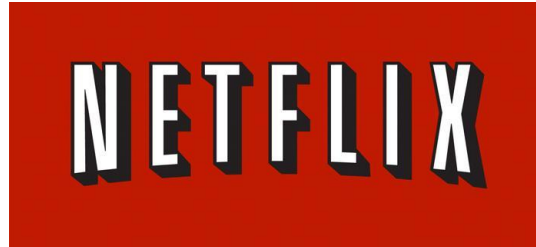
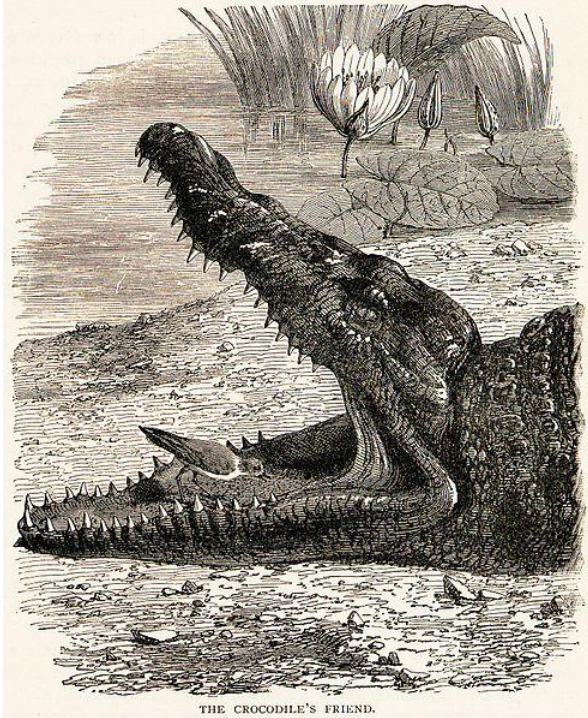
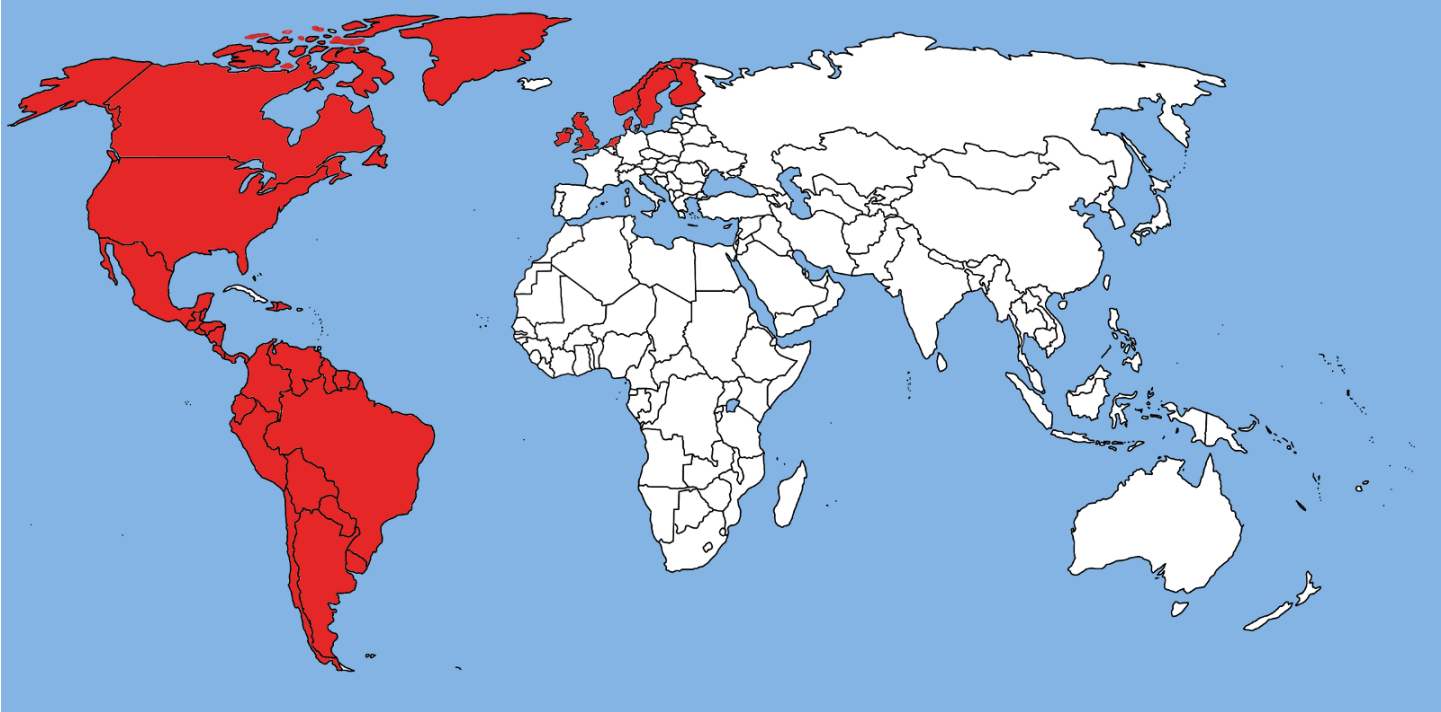


# Benefits of Cloud-based partner services for the Consumer Electronics Industry



**Mikey Cohen, Principal Engineer & Architect**  
**Edge and Playback Platform, Netflix**  
**[mikey@netflix.com](mailto:mikey@netflix.com)**

# Over 40 Million Subscribers



# In over 40 Countries

# Netflix accounts for over 30% of peak internet traffic in North America

Rank	Upstream		Downstream		Aggregate	
	Application	Share	Application	Share	Application	Share
1	BitTorrent	36.35%	Netflix	31.62%	Netflix	28.18%
2	HTTP	6.03%	YouTube	18.69%	YouTube	16.78%
3	SSL	5.87%	HTTP	9.74%	HTTP	9.26%
4	Netflix	4.44%	BitTorrent	4.05%	BitTorrent	7.39%
5	YouTube	3.63%	iTunes	3.27%	iTunes	2.91%
6	Skype	2.76%	MPEG - Other	2.60%	SSL	2.54%
7	QVoD	2.55%	SSL	2.05%	MPEG - Other	2.32%
8	Facebook	1.54%	Amazon Video	1.61%	Amazon Video	1.48%
9	FaceTime	1.44%	Facebook	1.31%	Facebook	1.34%
10	Dropbox	1.39%	Hulu	1.29%	Hulu	1.15%
		66.00%		76.23%		73.35%




Table 2 - Top 10 Peak Period Applications - North America, Fixed Access

Netflix subscribers watch over 1 billion hours a month

**That's over 100,000  
Years of Streaming**

per month...

# Netflix supports over 1000 device types

The image displays a wide variety of electronic devices and brands, all featuring the Netflix interface. The devices include:

- Televisions: Various sizes and models, some showing the Netflix home screen with movie thumbnails.
- Smartphones: Multiple models showing the Netflix mobile app interface.
- Tablets: Several tablets displaying the Netflix app.
- Gaming Consoles: Xbox 360 and PlayStation 3 are shown with the Netflix interface.
- Other Devices: Includes a Nintendo Wii, a Sharp sound system, a Vizio soundbar, and various other home entertainment equipment.

Brands and logos visible include: VIZIO, SHARP, Nintendo, SONY, TOSHIBA, XBOX 360, Windows phone, Panasonic, SAMSUNG, LG, Roku, and others. The central focus is a large monitor displaying the Netflix home screen with a grid of movie and TV show covers.

And many other brands like these:

NETGEAR SANYO TOSHIBA PHILIPS WD Western Digital INSIGNIA Logitech Haier Seagate YAMAHA TCL D-Link BOSEE Pioneer Hisense  
marantz DENON ASUS FUNAI MAGNAVOX SYLVANIA RCA SYNEX VIORE oppo ORION HITACHI ONKYO SANSUI omega

**This sells TVs**



# This sells game consoles





**In a mutually beneficial relationship, you  
need a good partner**





# How Netflix has been a good partner

- Sells your consumer devices
- Gives a great user experience
- Has an engaging service
- Has a solid cloud infrastructure
- Can keep it up all day and night!



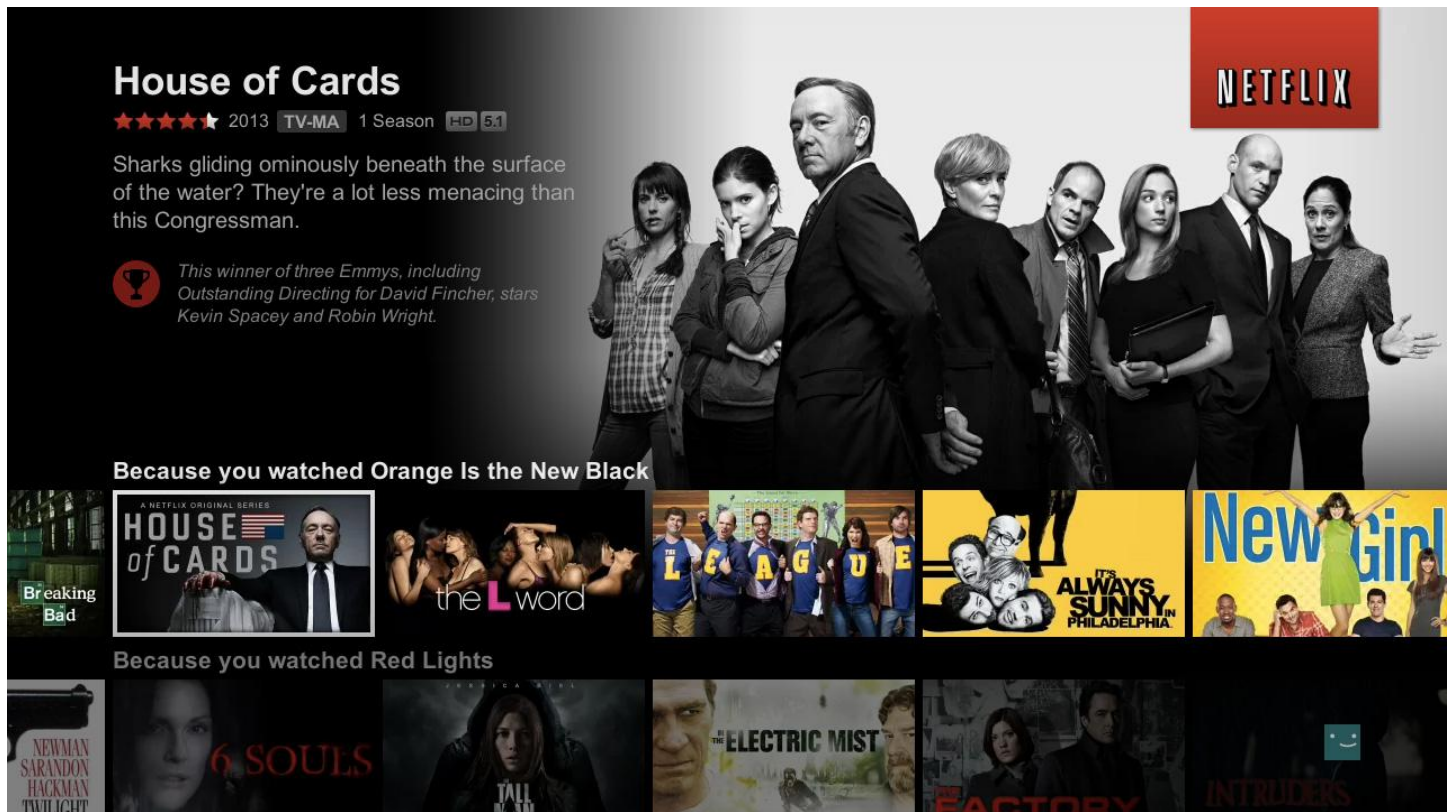
# Why is Netflix a good partner?

- Popular brand
- High quality service
- Easy to integrate

# Powerful CE Integration layer

- Architecture to efficiently accommodate diverse device spectrum
- Flexible sdk to accommodate
  - Device specific encodings
  - Various DRM
  - Partner specific user experiences support
- Natively built unified platform
  - Built for most common CE chipsets

# Unified UI platform




The image shows a Netflix user interface for the TV series "House of Cards". At the top right is the red Netflix logo. The main title "House of Cards" is displayed in white, followed by a star rating of four stars, the year "2013", the rating "TV-MA", "1 Season", and "HD 5.1". A synopsis reads: "Sharks gliding ominously beneath the surface of the water? They're a lot less menacing than this Congressman." Below this is a trophy icon and text: "This winner of three Emmys, including Outstanding Directing for David Fincher, stars Kevin Spacey and Robin Wright." A large black and white promotional image of the cast is on the right. Below the main content are two rows of recommendations. The first row is titled "Because you watched Orange Is the New Black" and includes thumbnails for "Breaking Bad", "House of Cards", "the L word", "The League", "It's Always Sunny in Philadelphia", and "New Girl". The second row is titled "Because you watched Red Lights" and includes thumbnails for "Newman Sarandon Hackman Twilight", "6 Souls", "Tall Men", "The Electric Mist", "The Factory", and "Intruders".

## House of Cards

★★★★☆ 2013 TV-MA 1 Season HD 5.1

Sharks gliding ominously beneath the surface of the water? They're a lot less menacing than this Congressman.

 This winner of three Emmys, including Outstanding Directing for David Fincher, stars Kevin Spacey and Robin Wright.

### Because you watched Orange Is the New Black

Breaking Bad

HOUSE of CARDS

the L word

THE LEAGUE

IT'S ALWAYS SUNNY IN PHILADELPHIA

New Girl

### Because you watched Red Lights

NEWMAN SARANDON HACKMAN TWILIGHT

6 SOULS

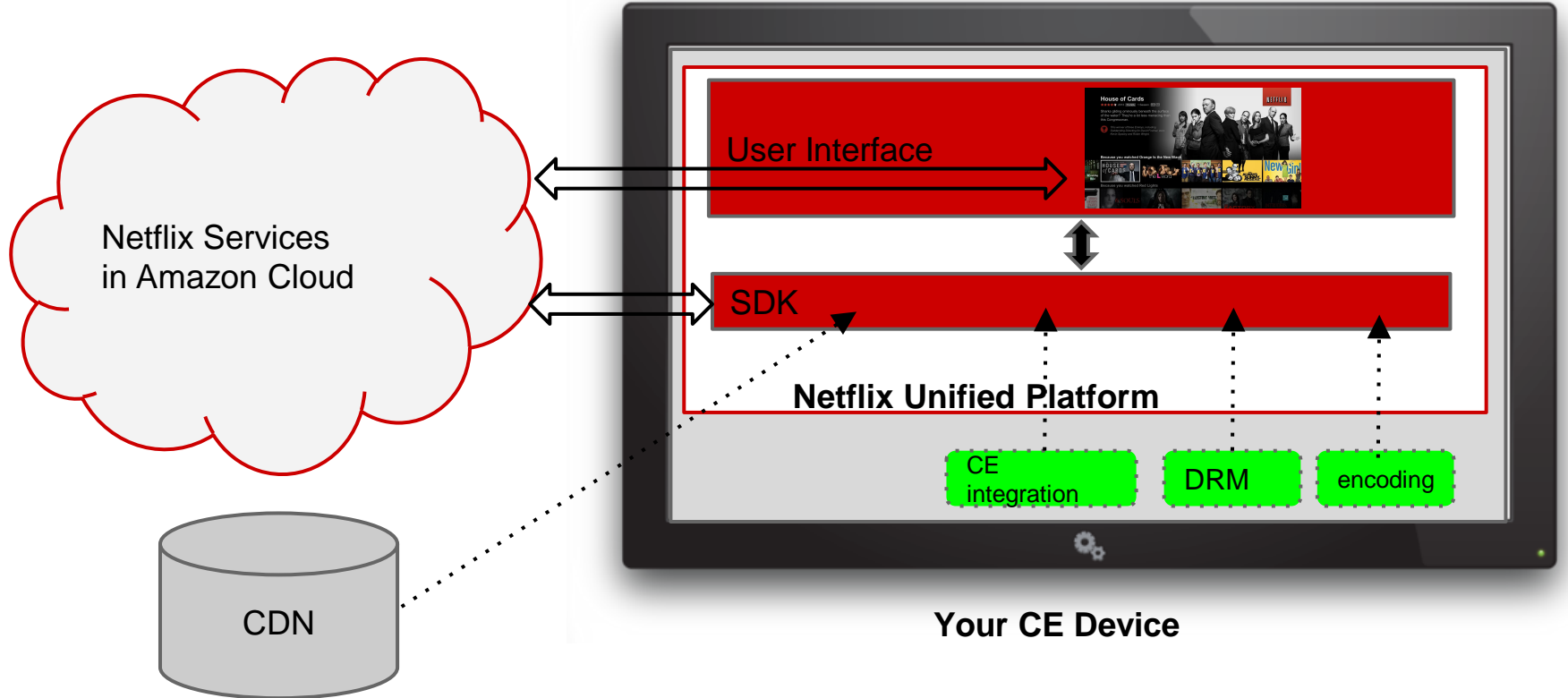
TALL MEN

THE ELECTRIC MIST

THE FACTORY

INTRUDERS


# Unified Platform Architecture



# Benefits of Unified CE platform

- Limited CE integration touchpoints
- Transparent software updates
- Best possible user experience
  - Keeps it “fresh”
  - Reflects positively on CE brand as well as partner



A photograph of a flock of birds flying in a V-formation against a sunset sky. The birds are silhouetted against the bright orange and yellow light of the setting sun. The sky transitions from a deep blue at the top to a warm orange near the horizon. The bottom of the image shows the dark silhouette of a forested hillside.

**Why is the cloud  
beneficial?**

# Cloud benefits are obscured by hype



# Core benefits of cloud computing

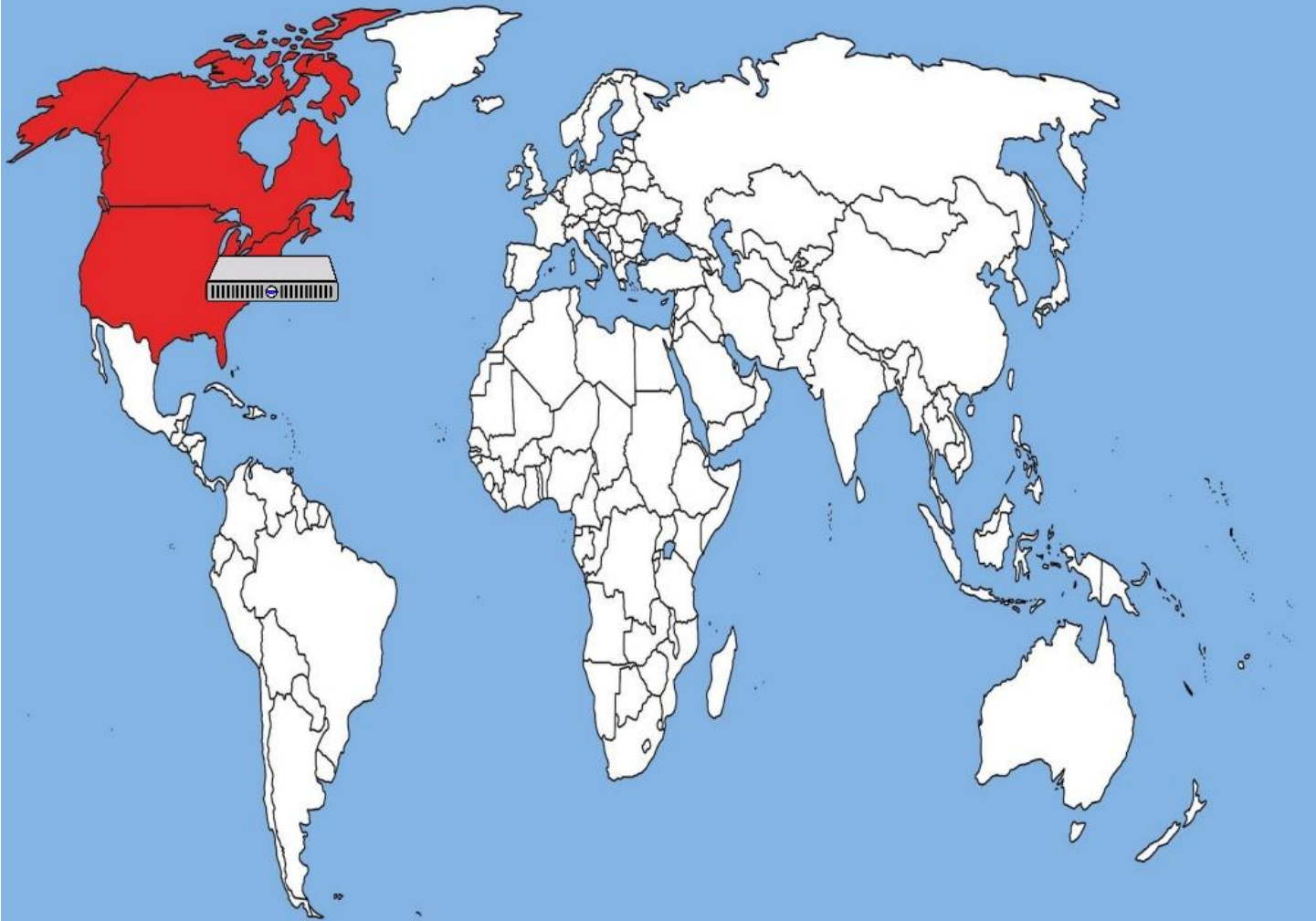
- Software control
- Locality
- Resilience
- Scale
- Security

# Software Control

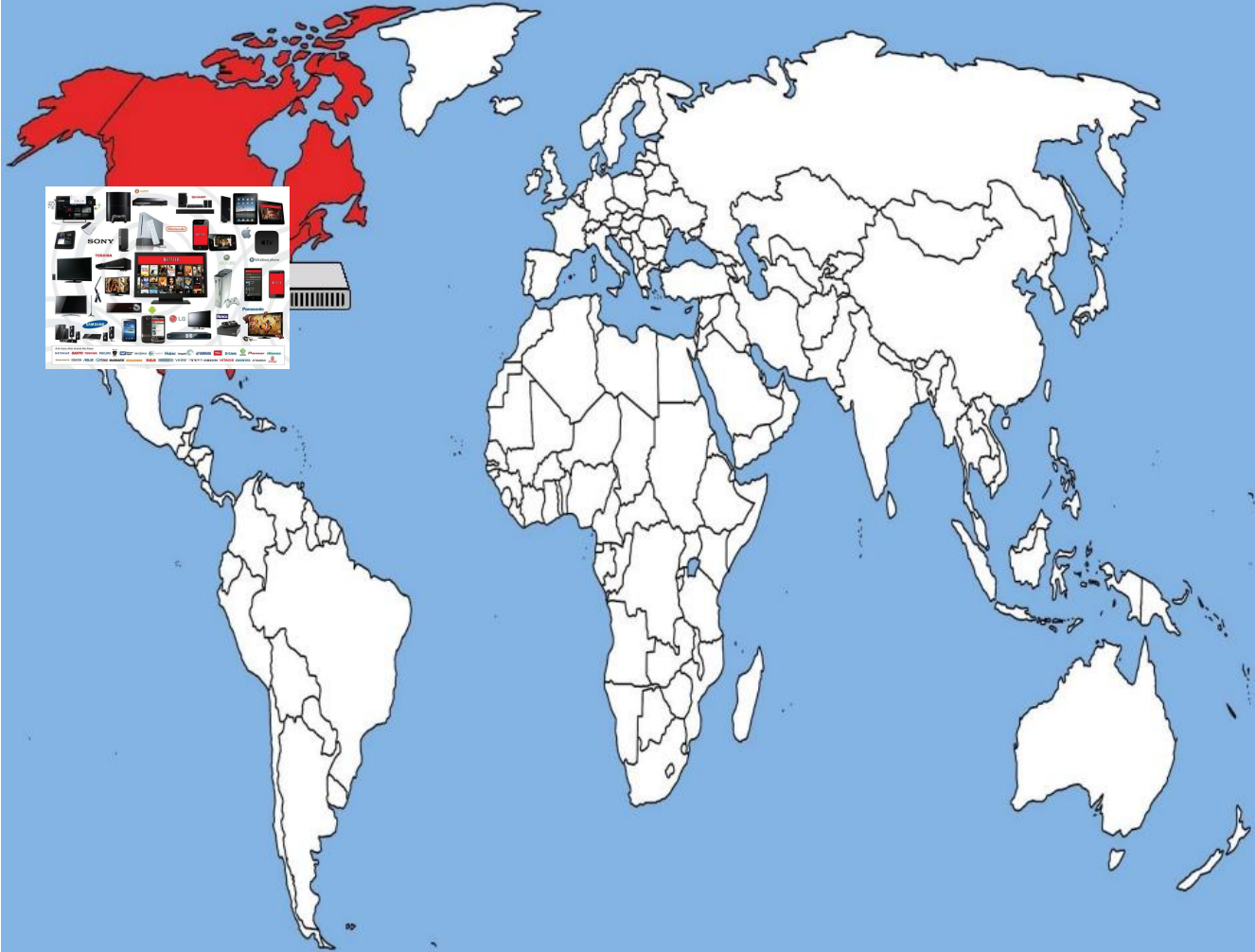
- Intelligently scale services
- Automatic deployment pipeline
- Automated system analysis
- Disaster recovery

# Locality

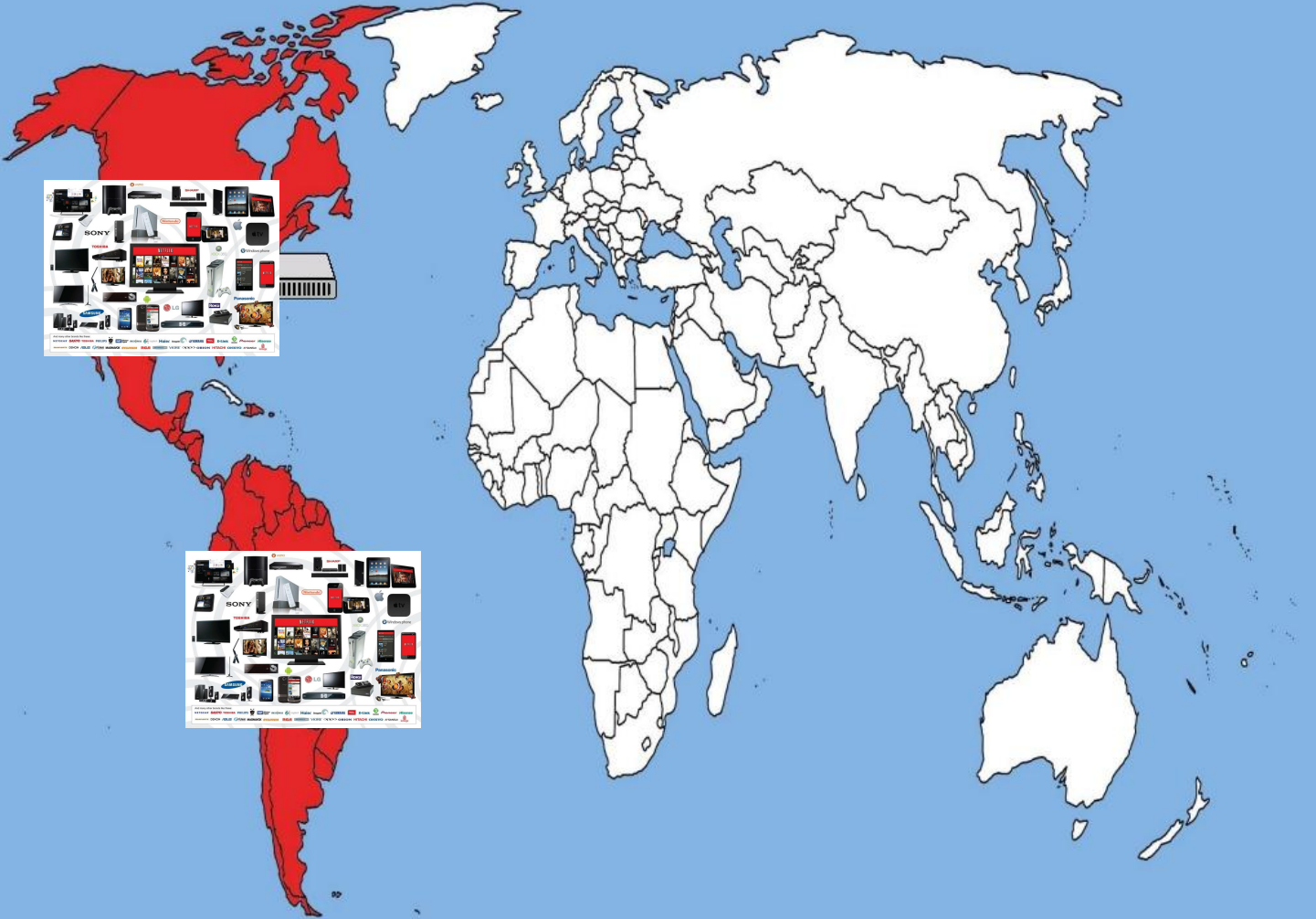
- Regional cloud distribution
  - Ease of adding new cloud regions
- As Netflix expands into new countries/markets, devices automatically work.

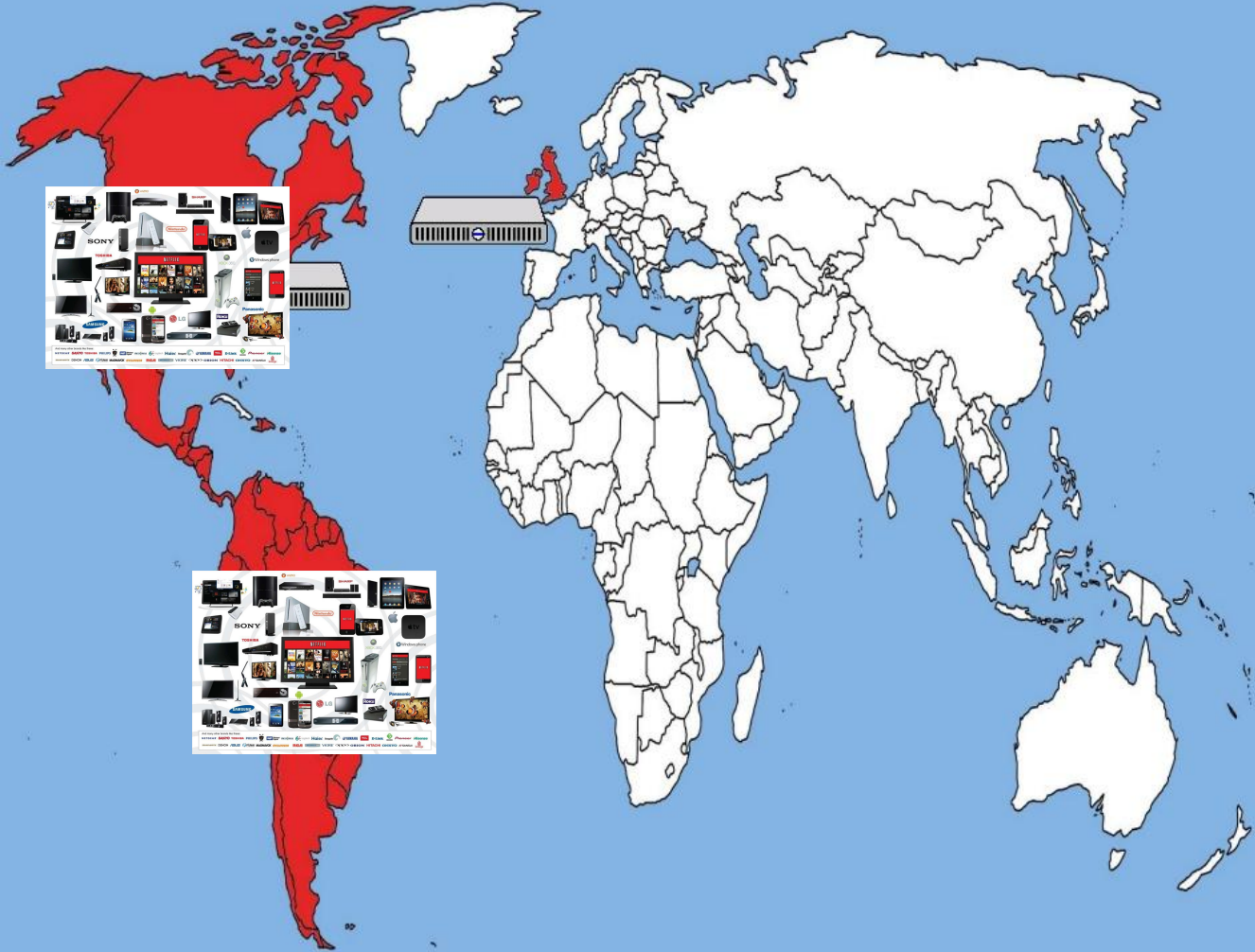




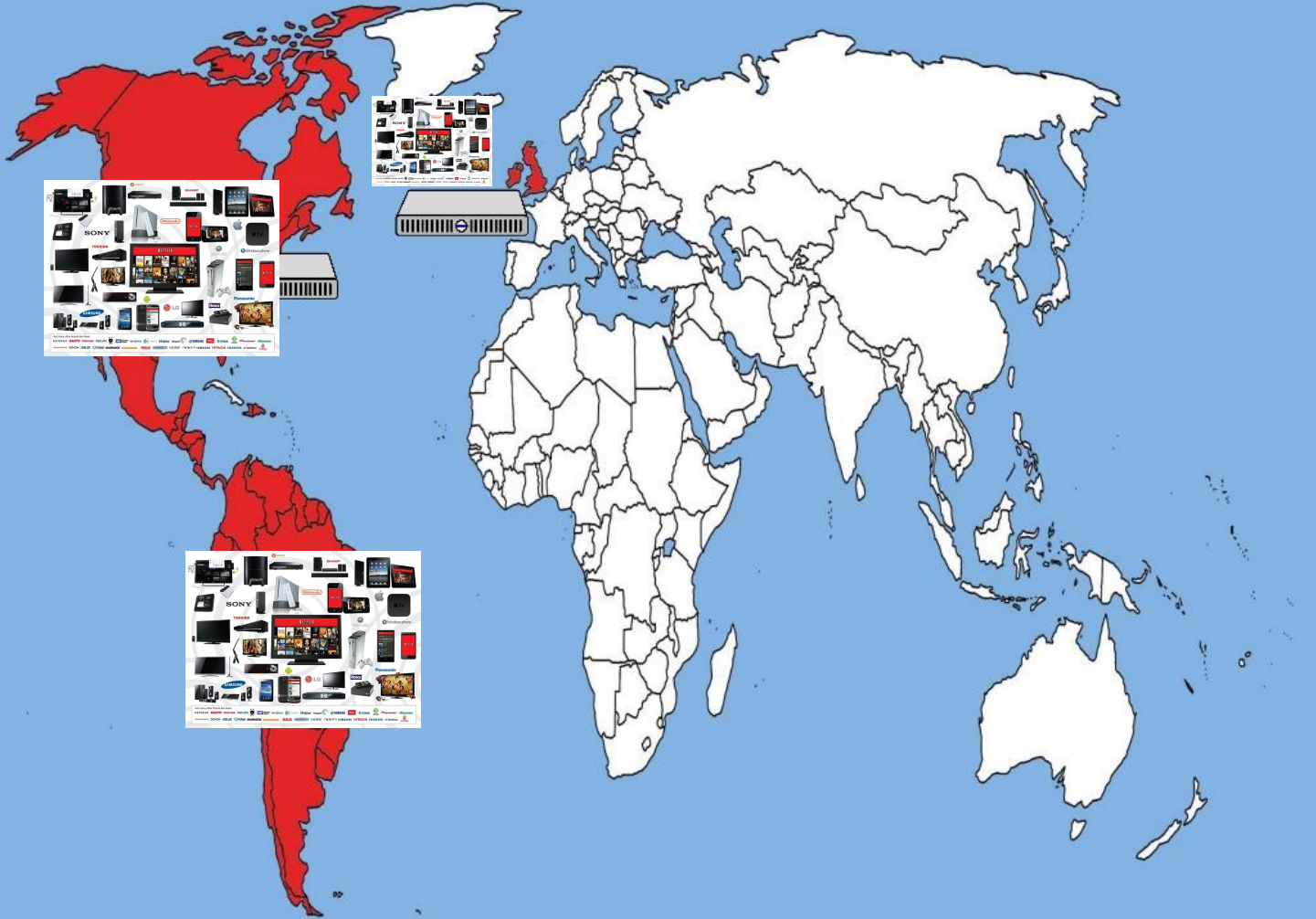


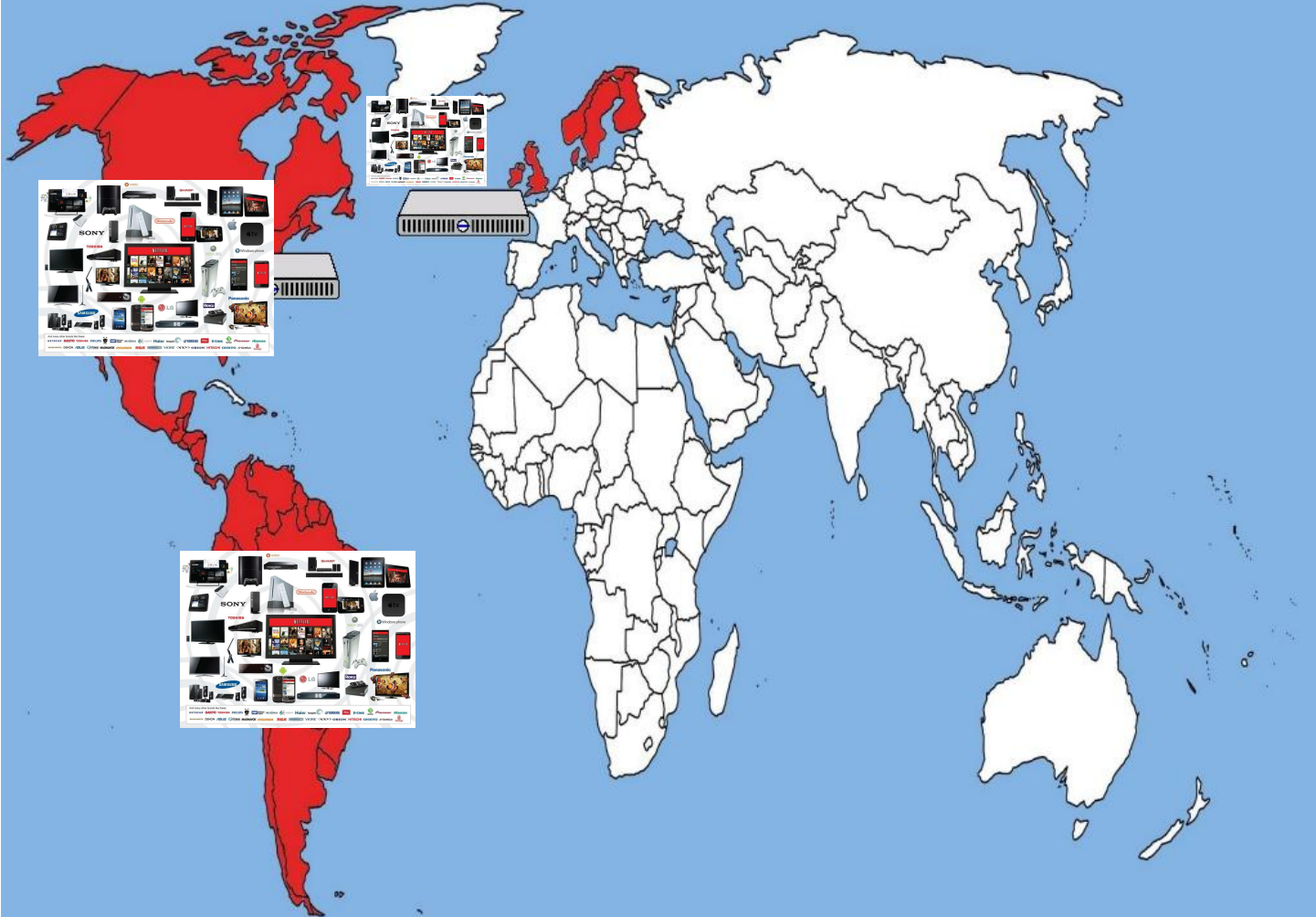




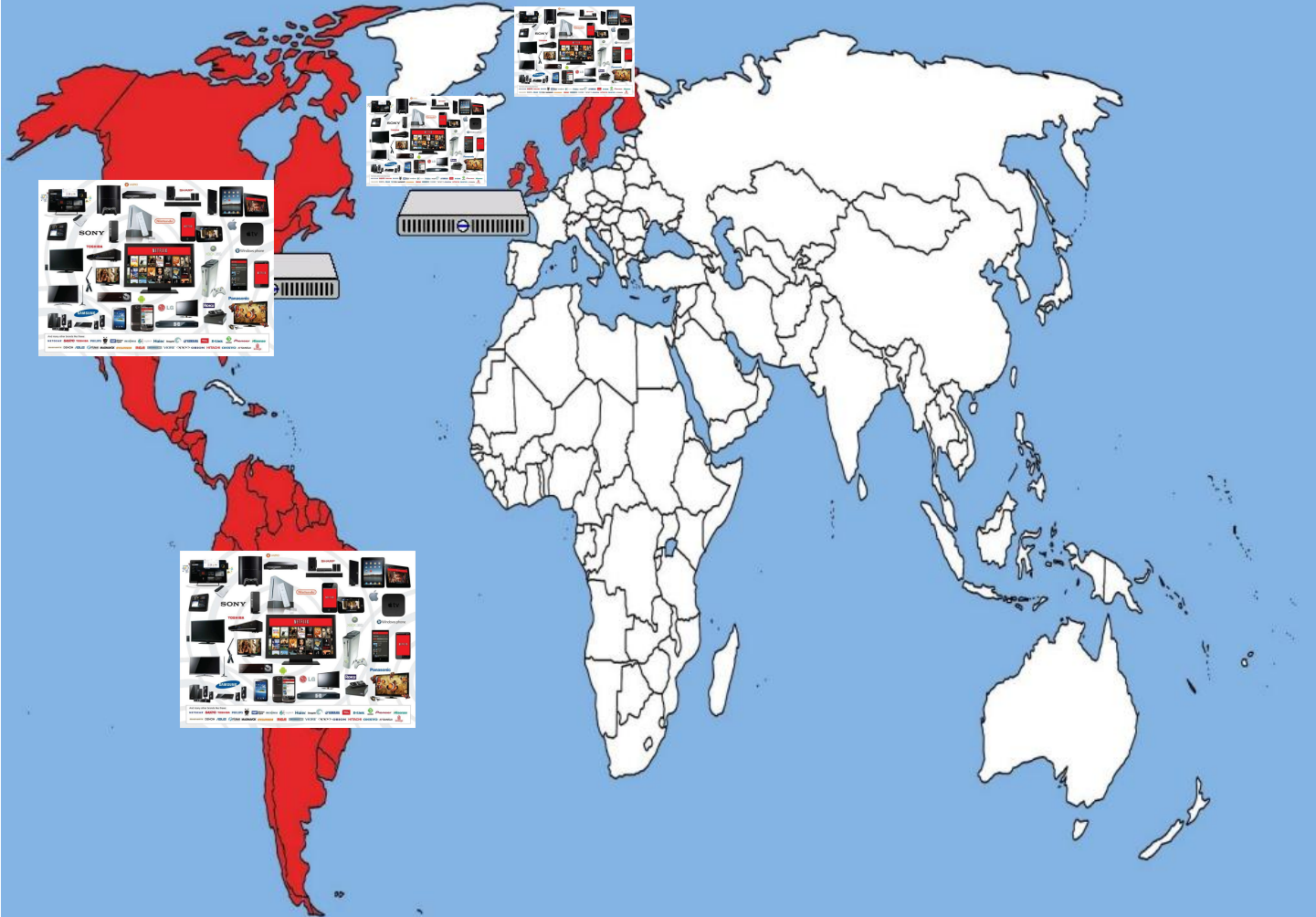












# Resilience



- **Code failure - *Continuous delivery***
- **Service failure - *fallbacks and redundancy***
- **Instances and Zone failure - *redundancy***
- **Cloud infrastructure failure - *Multiple active regions***

# Scale



# Security

- Leveraging best practices from cloud providers
  - Data
  - Network
  - Firewalls
  - Identity Management
  - Etc

# Failure will happen



**FAILURE**

Nothing has ever failed quite as hard as you just did.



# Failure is Expensive



## Partners in the cloud: A better user experience

- Uptime
- Faster recovery
- Makes CE device and partner look good

**Vet your potential CE partnership**







**NETFLIX**

**For more Info on Netflix Cloud Technology:**

Read our Technology Blog : <http://techblog.netflix.com/>  
Check out our Open Source Cloud Projects : <http://netflix.github.io>