OTT and Moving up the Stack
for PTC Academy
Bangkok, Thailand

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Every Major Retail Telco Problem Starts With...
Can You Move Up the Stack?

Larger percentages of subscribers’ budgets going to Internet Content
Up the Stack? Depends.

Each layer depends on status of all layers under it.

Higher layers are progressively tighter tied into the business process.

Service stack

source: Vermont IT Group
## “Value” and Market Capitalization

### 2017 Global Market Capitalization Leaderboard

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Region</th>
<th>Industry Segment</th>
<th>Current Market Value ($B)</th>
<th>2016 Revenue ($B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apple</td>
<td>USA</td>
<td>Tech – Hardware</td>
<td>801</td>
<td>218</td>
</tr>
<tr>
<td>2</td>
<td>Google / Alphabet</td>
<td>USA</td>
<td>Tech – Internet</td>
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<td>3</td>
<td>Microsoft</td>
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<td>Tech – Software</td>
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<td>Energy</td>
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<td>Switzerland</td>
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<td>Financial Services</td>
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### Total

<table>
<thead>
<tr>
<th></th>
<th>Current Market Value ($B)</th>
<th>2016 Revenue ($B)</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td>$7,207</td>
<td>$2,497</td>
</tr>
</tbody>
</table>

Source: CapIQ. Market value data as of 5/26/17.

Note: For public companies, color denotes current market value relative to Y/Y market value. Green = higher, red = lower.
All Apps are Now OTT, Ownership is the Issue
Up the Stack in Computing Services

PROGRESS = Moving up the stack

SOFTWARE AS A SERVICE
- Application
- Runtime (PHP, Rails, Java, etc.)
  - VMs via API

PLATFORM
- Application
- Runtime (PHP, Rails, Java, etc.)
  - VMs via API

CLOUD
- Cloud Infrastructure
  - VMs via API
- VMs via API

HOSTING
- Bare Metal
  - RackSpace Classic, Linode
- Cloud Infrastructure
  - AWS, AppFog, Heroku
  - Salesforce, SquareSpace

source: Pantheon
Electricity < Lighting < Smarter Lighting

source: evrythng.com
Electricity < Appliances < Sensors < Insight < Control < Value

source: McKinsey
Connected Car Ecosystem

The Connected Car Landscape – An Application Focus
IoT Value Stack

7 Layers of the Internet of Things (IoT)

**Business Value**
- **People & Process**: Layer 7 – Transformational decision making based on “Thing” Apps & Data
- **Applications**: Layer 6 – Custom Apps built using “Thing” data

**Big Data**
- **Data Analysis**: Layer 5 – Reporting, Mining, Machine Learning
- **Data Ingestion**: Layer 4 – Big Data, Harvest & storage of “Thing” data

**Cloud**
- **Global Infrastructure**: Layer 3 – Cloud infrastructure (public, private, hybrid, managed)

**Fog**
- **Connectivity/Edge Computing**: Layer 2 – Communications, Protocols, Networks, M2M, Wifi, Telecom, HW Kits
- **Things**: Layer 1 - Devices, sensors, controllers, etc.

source: Mike Kavis
Up or Down the Stack in Video

Examples of Video Value Chain Players

- Content Creation
  - Sporting Body
  - Film Producer
  - Musician
  - Brand Advertiser

- Aggregation
  - Broadcast Channel
  - Film Studio
  - Record Company
  - Video Portal

- Distribution
  - Fixed ISP
  - Mobile Operator/ISP
  - Cable Network
  - Movie Chain
  - Retail Seller of DVDs

- Devices
  - TV
  - Set top box
  - Games Console
  - PC
  - Mobile Handset
  - Dedicated Media Player

source: Survey Monkey
THANK YOU