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Enjoy the Uptime.

SDN offers Internet, connectivity and managed services over its 30,000 miles of fiber optics.
The network touches 300+ South Dakota communities, plus connects to other regional and national networks.

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Gadgets & Gizmos – Connected Devices that *Could* Hijack Your Network

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The Connected Home

- Connected (Internet connected) consumer electronics are proliferating exponentially
- Your customers interface with connected devices so commonly they largely take them for granted
- The influx in connected devices impacts you in multiple ways:
  - It changes customers' expectations for banking interactions (to be virtual, and app driven)
  - Voice recognition / control might impact the way your customers bank with you
  - BYOD – Bring Your Own Device – businesses need greater bandwidth to support customers and employees connected devices
  - Security, security, security….

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Nest Products

- Nest
  - Nest thermostat is the highest rated “smart” programmable thermostat sold
  - “Learns” your preferences
  - Connects to WiFi
  - Auto-away settings
  - Provides monthly energy report via email

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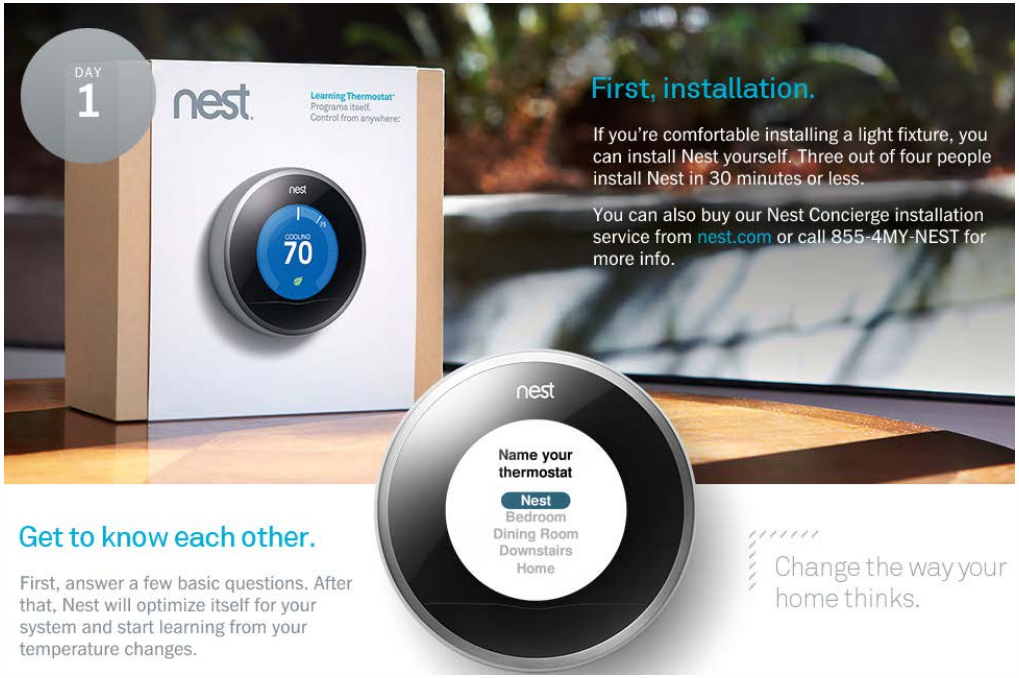
Nest



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Nest Protect

- Smoke detector and CO alarm in one
- Integrates with Nest thermostat app
  - Automatically turns off gas furnace if carbon monoxide alarm goes off
- Talks rather than annoying alarm
  - “Emergency. There’s smoke in the bedroom”
- Pathlight feature
  - Briefly lights your way when you walk under it in the dark, then turns off as you pass
- Speed recommendation: 1 Mbps
  - Uses less than 50 MB/month

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Nest Cameras

- Dropcam Pro
  - Field of view 130 degrees (an increase of 23 degrees from the original)
  - 8x zoom (double the original)
  - Improved low light vision
  - Enhanced two-way audio

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Nest Cameras

- Live look-in – free
- 7 days of saved video $9.95 per month
- 30 days of saved video $29.95 per month
- 50% of cloud video recording for additional cameras
- Activity recognition (web-only beta)
  - Get notifications about activities in your home
  - Nest learns typical motion patterns in your video stream enabling customize alerts
- Speed recommendation: 450 Kbps average / 1.2 Mbps maximum (during high activity)

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A Nest home.

When you add more Nest products to your home, they can automatically work together.
And you can control them all from one place: the Nest app.

If you have a Nest Cam, it can automatically turn on alerts when you set your Nest Thermostat to Away. So when you go on vacation, your thermostat turns itself down, and Nest Cam turns itself on.

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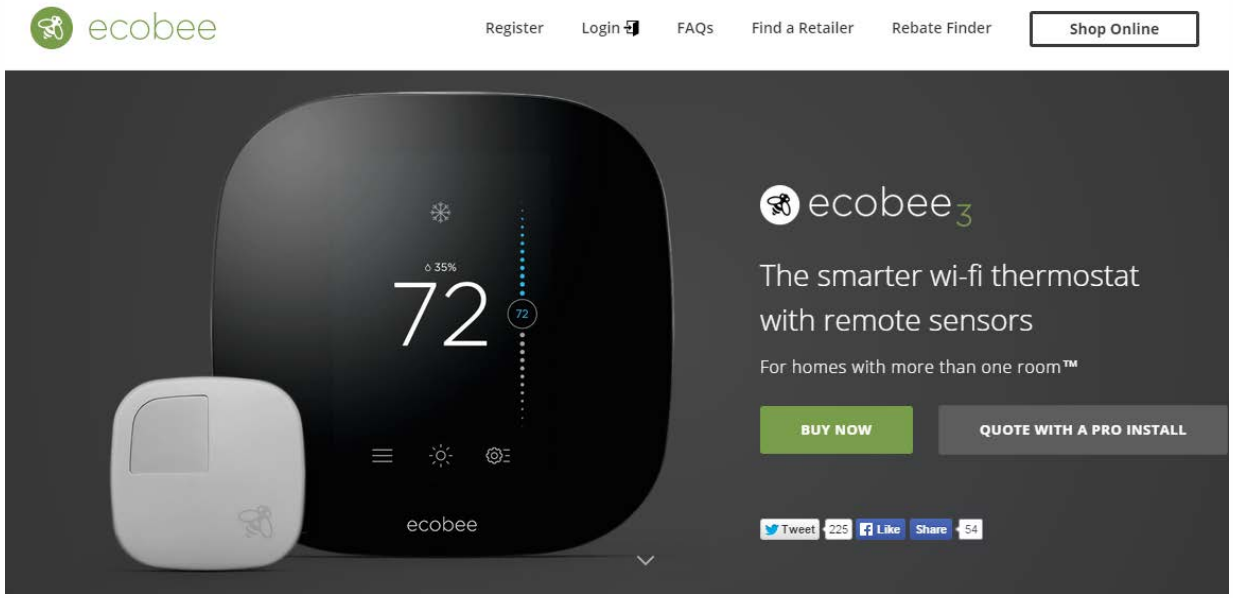
Ecobee



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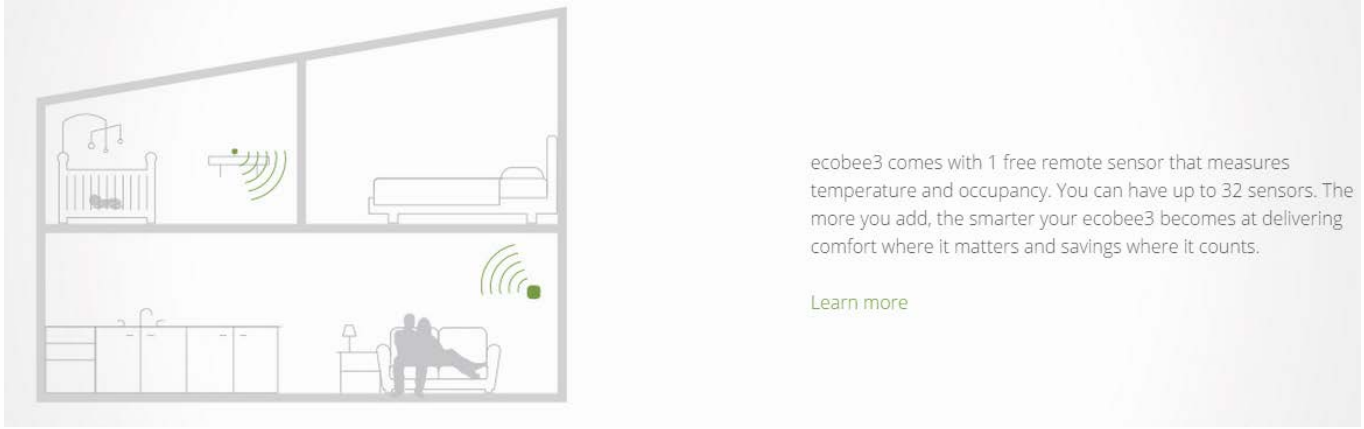
Ecobee



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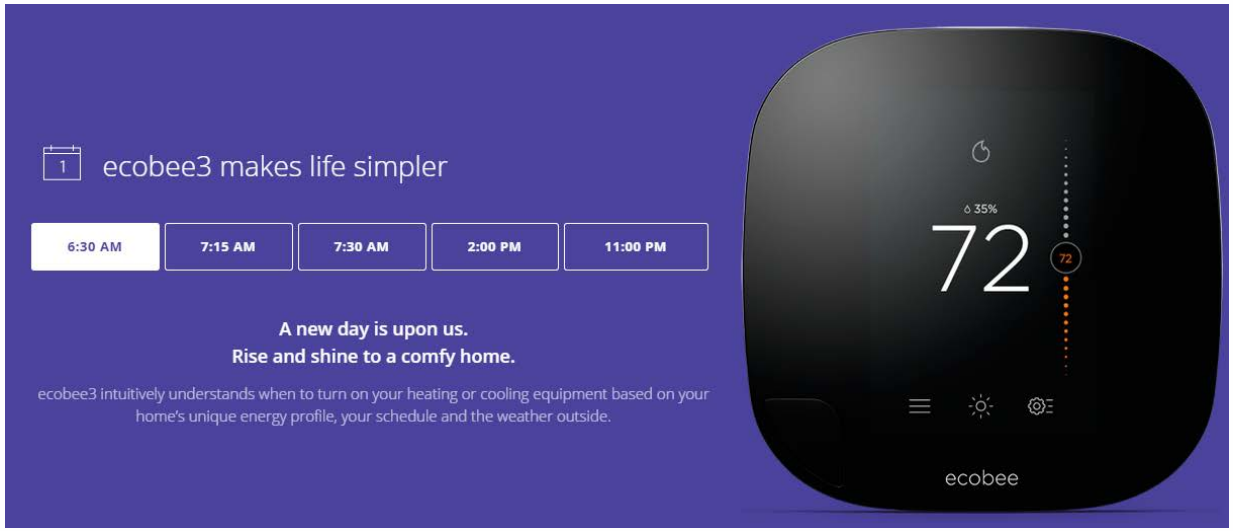

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Ecobee

- Speed recommendation: 1 Mbps
  - Uses 30 – 40 MB/month
- Price: $249

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All In One Device

Canary's HD video camera and safety sensors track everything from motion, temperature and air quality to vibration, sound, and activity to help keep you, your family and your belongings safe.

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Canary Update

- Canary (All-In-One-Security)
  - HD camera, temperature monitoring, air quality, humidity and activity (video, audio & movement)
  - Wireless
  - Cost $199

- Speed recommendation: 1 Mbps
  - Uses 140 KB / 2 seconds of video or 42 MB of 10 minutes of video

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Hardware

HD Camera w/ Night Vision

Wide Angle Lens

Wi-Fi Enabled

High Quality Microphone

Speaker

Siren

RGB LEDs

3-Axis Accelerometer

Motion Detection (Passive Infrared)

Temperature Sensor

Humidity Sensor

Air Quality Sensor

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Smart Lighting

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LIFX Specs

- $59.99 for the color 1000 bulb
- 16 million colors at your fingertips
- Controlled via Wi-Fi and a LIFX App
- LED bulb – rated to last up to 40,000 hours (27 years at 4 hours use per day)
- Energy efficient (11 watts at full brightness)
- Brightness – up to 1,055 lumens (that's really bright)
- Debuted on crowdfunding site Kickstarter in September, 2012
  - Received pledges of $1.3 million in 6 days
- Each bulb has its own Internet connection
- Speed recommendation: 1 Kbps

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LIFX – New Lower Cost Bulb

- The White 800
  - Cool to warm whites
  - 2 yr. manufacturers warranty
  - $39.99 per bulb

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Amazon echo

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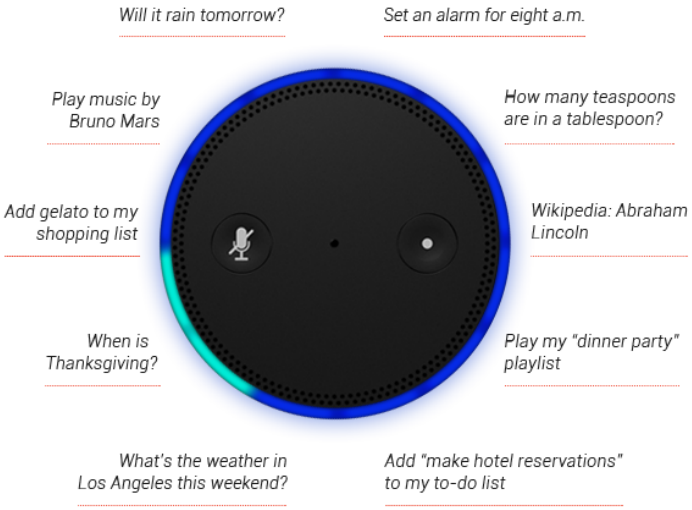
Amazon echo

WHAT IS AMAZON ECHO?

Amazon Echo is designed around your voice. It's always on—just ask for information, music, news, weather, and more. Echo begins working as soon as it hears you say the wake word, "Alexa." It's also an expertly-tuned speaker that can fill any room with immersive sound.



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PlayDate

- Smart ball controlled from your mobile device via app
- Started on Indiegogo (crowdfunding website)
- https://www.indiegogo.com/projects/playdate-world-s-first-pet-camera-in-a-smart-ball
  - Goal of raising $60,000 reached in 8 hours

- Prices:
  - $149 / 1 unit
  - $259 / 2 units
  - $399 / 4 units

- Estimated delivery: December 2016

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PlayDate

- Features:
  - Live HD video
    - Stabilization technology to prevent dizziness
    - 5 Megapixel camera
  - Mic to hear and talk to pet
  - Directional touchpad to move device
  - Customizable squeaker
  - Take photos or record video
  - 3 or 4 inches in diameter
  - Battery life of 30 minutes
  - Charging dock
  - Auto-play mode (coming soon)

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Samsung Smart Refrigerator

- Manage groceries, connect with family and entertain
- 3 built-in cameras
- Family Hub – touch screen
  - Calendar
  - Notes
  - Music
- Custom Cooling
- Price: $5,599.99 – 5,999.99

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Google's OnHub

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Google's OnHub

- TP-LINK
  - Front-facing antenna reflector for greater range in that direction
  - $199.99

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Google's OnHub

- ASUS
  - Boost Wi-Fi on a particular device with wave of your hand
  - $219.99

ASUS

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DDoS – Distributed Denial of Service

- A targeted cyberattack
- Intent – to make your online services unavailable by overwhelming them with traffic (from multiple sources)
- DDoS “services” control legions of infected machines (zombies or botnets)
- All those “gadgets & gizmos” we covered could potentially be used (unwittingly) in a DDoS attack

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DDoS Attacks

- Competitors, dissatisfied customers, disgruntled employees, former employees and “hacktivists” have learned they can do a lot of damage with very little financial investment

- Your network is your pipeline to customer contacts
  - A DDoS attack can direct so much Internet traffic traveling to your IP address that your work, customer orders, online services and even your phone system can grind to a halt – leaving your business paralyzed

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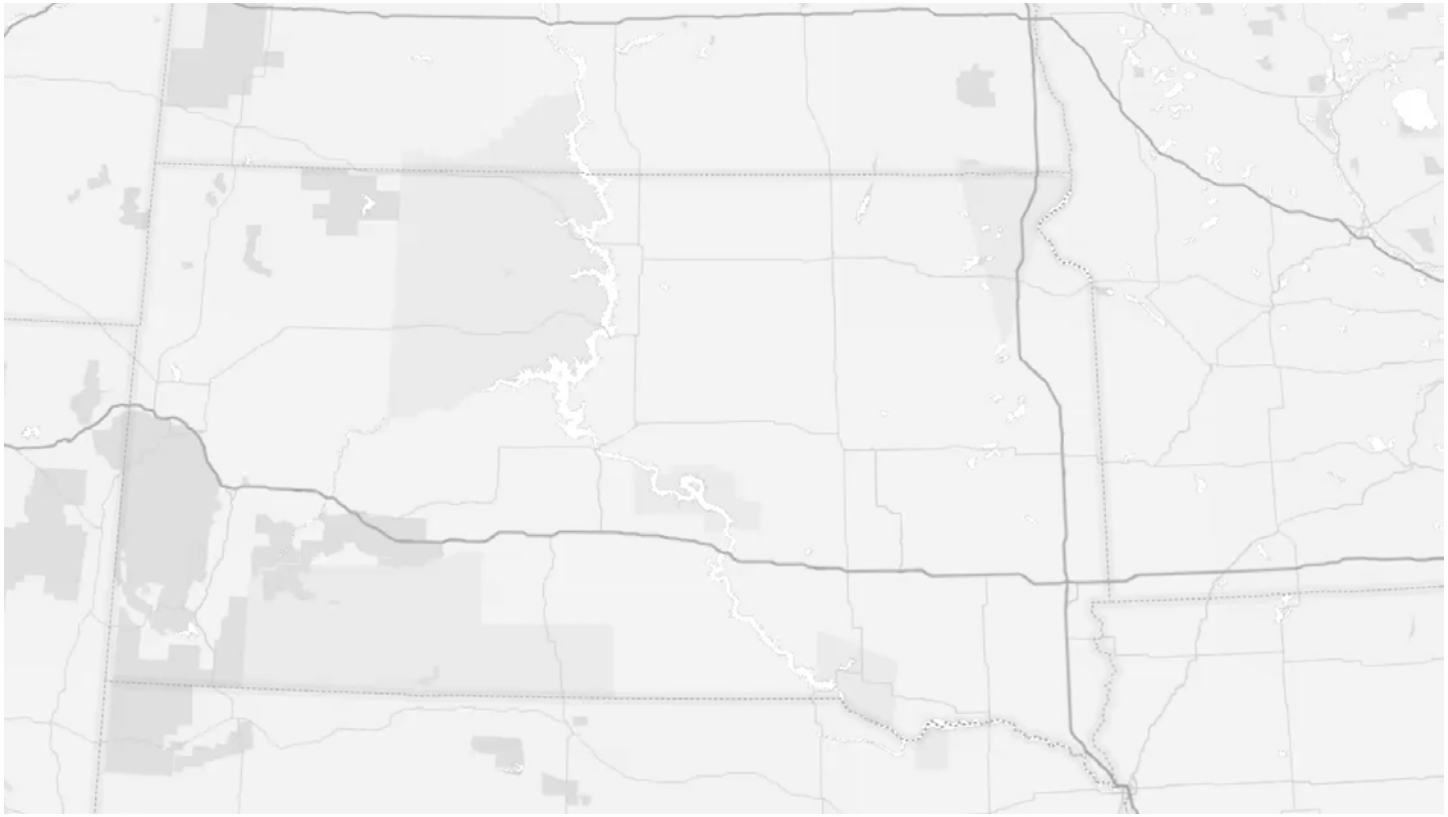

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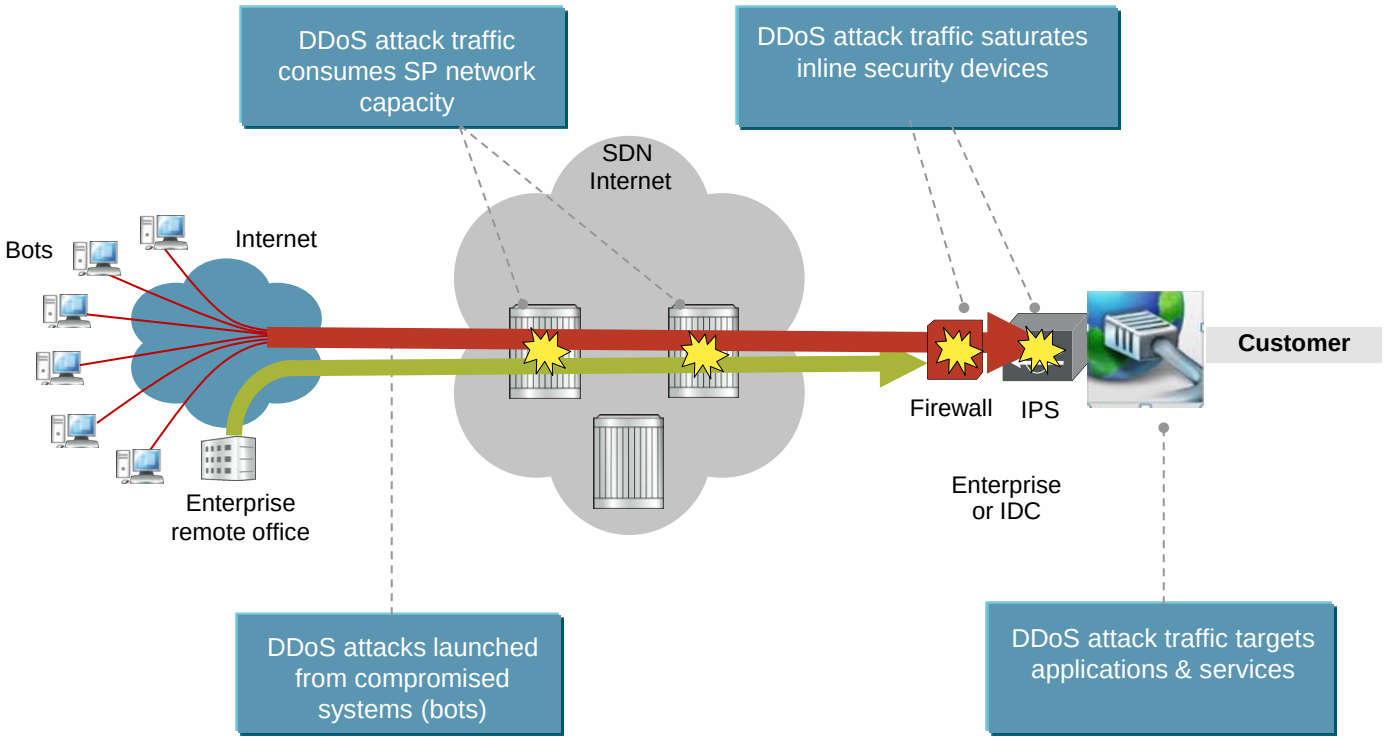
DDoS Attack Structure



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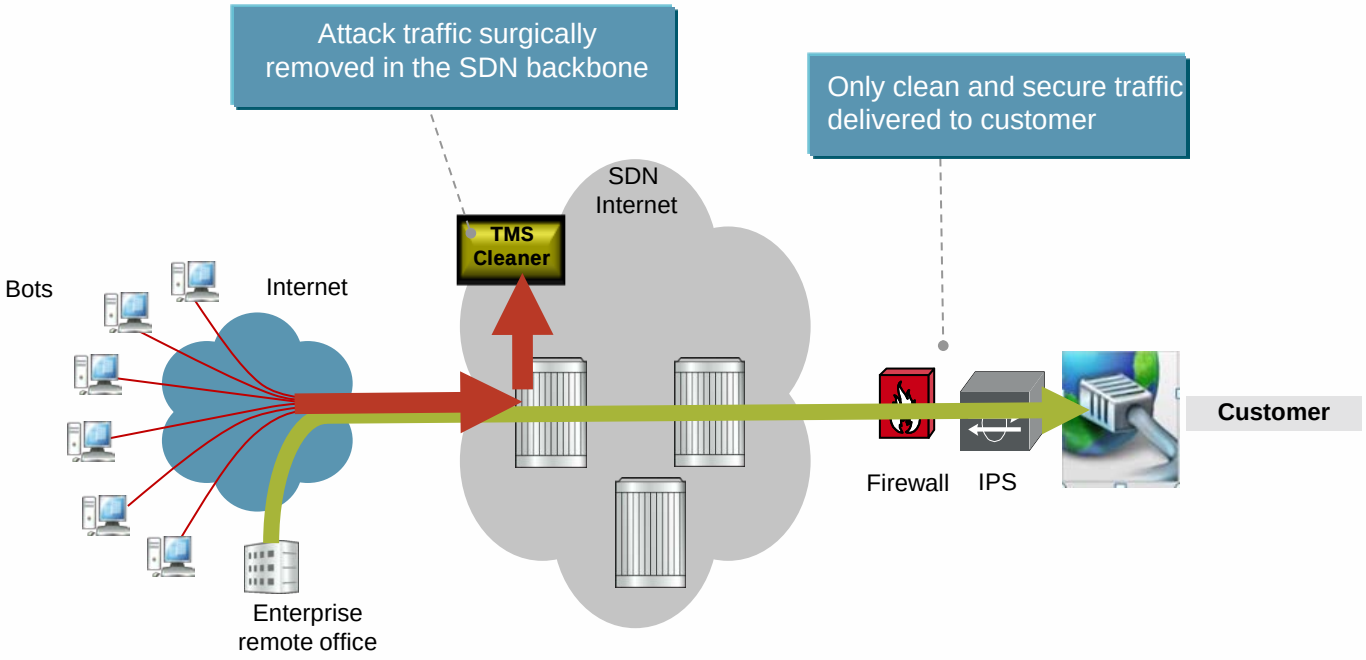

As the network provider, SDN is positioned to perform DDoS threat mitigation.

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SDN DDoS Reports

- 174% increase in high alerts 2016 over 2015
- 117% increase in attack size, 2016 over 2015
- 1.4 Gbps, average attack size in 2016, this is larger than the average attack size Arbor Networks is seeing on a global level

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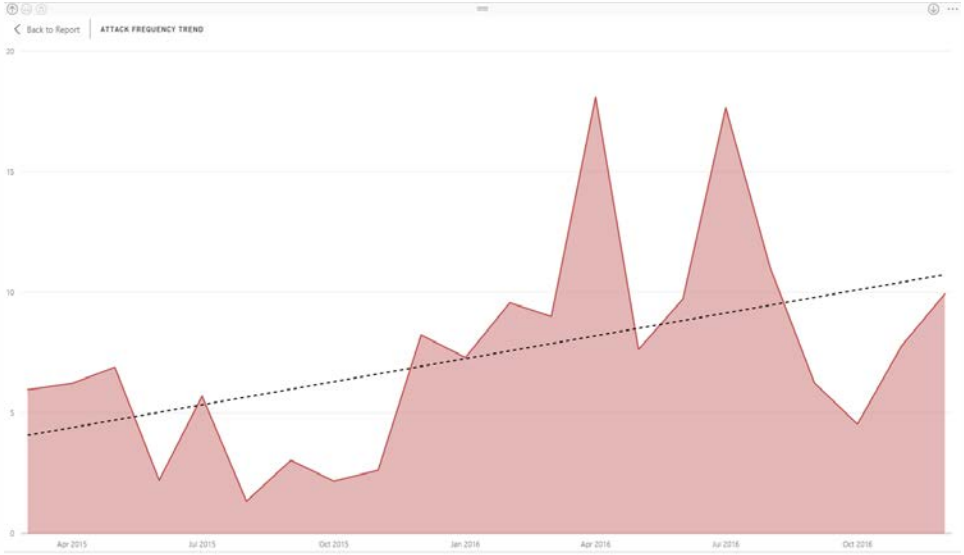
2015 to 2016 Attack Frequency Trend



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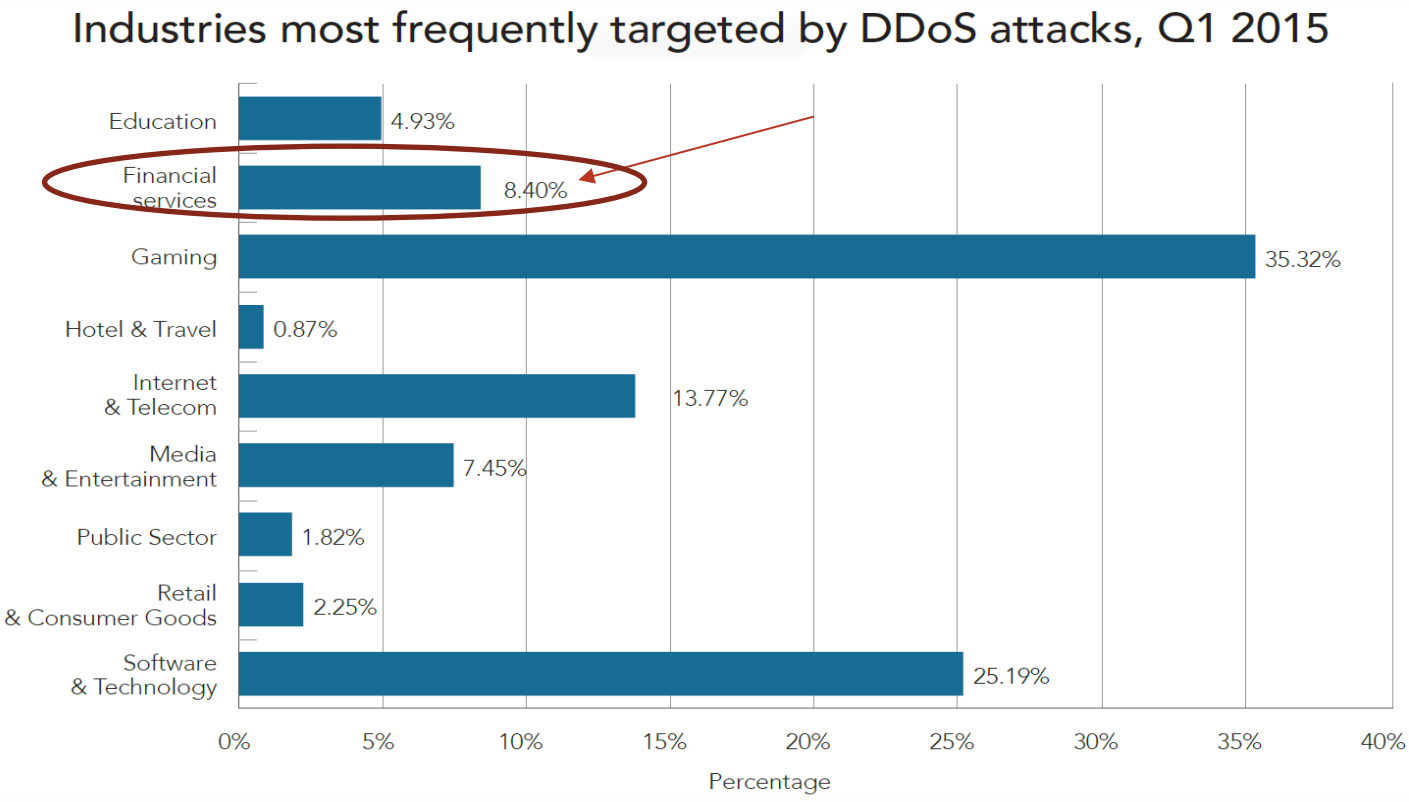
Industries



[Akamai, State of the Internet Q1 2015]

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Questions?

www.sdncommunications.com