# Demonstration of the Amazon Echo and Some Apple Stuff

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# **Background Information**

- Improvements in Computer Hardware:
  - Processing power 1 1 (Moore's Law)
  - Graphic processing 1 1 1
  - Cost of digital storage ↓ ↓ ↓ (cost)
  - Data storage (primitives, arrays, lists, trees,
     DBMS, hashes, etc) ← Active link
- Improvements in Software:
  - New languages 🔐 🔐 🔐
  - Open source software
  - Artificial intelligence
  - Speech recognition

## Background (cont.)

- Artificial Intelligence— computer systems that are able to perform tasks that normally require human intelligence (e.g., visual perception, speech recognition, decision making, & language translation)
- Beginning in the 1950s—artificial brain



- IBM's Watson LEE LEE
  - Games (chess, Jeopardy)
  - Medical diagnosis and providing medical advice (dozens of hospitals—in oncology and medical imagery)

#### Background (cont.)

Dramatic advances in speech recognition:











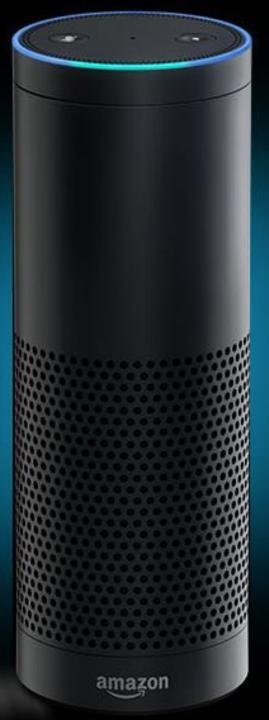


"Big Data"—extremely large data sets that may be analyzed by computer to reveal patterns, trends and relationships 🚉 🚉

# **Amazon Echo**

aka "A-l-e-x-a"

Shh... don't say that word!



#### The Wake Word

- "A-l-e-x-a" is the default "wake word" for the device
- In referring to the Amazon Echo, say:
  - "Alex"
  - "The Echo"
  - "you-know-who"
- "Echo" and "Amazon" are alternative "wake words"

# **Amazon Echo and Privacy**

- Society's concept of privacy has changed dramatically—much more liberalized
- No data are sent to Amazon's cloud processing until the "wake word" is spoken



- You can erase everything you've asked of the Amazon Echo 🚨 💂
- Wi-Fi connection does not support ad-hoc peer-to-peer networks

# **Opinions on Amazon Echo Privacy**

"Amazon Echo is the ultimate spy device..."



- "Alexa does not eavesdrop on your conversations"
- The likelihood of the Echo getting hacked... is very small..."
- "Amazon's A-l-e-x-a is not even remotely secure and I really don't care" 🔜

# So is the Amazon Echo private and secure?

Yes? No?

Maybe ?

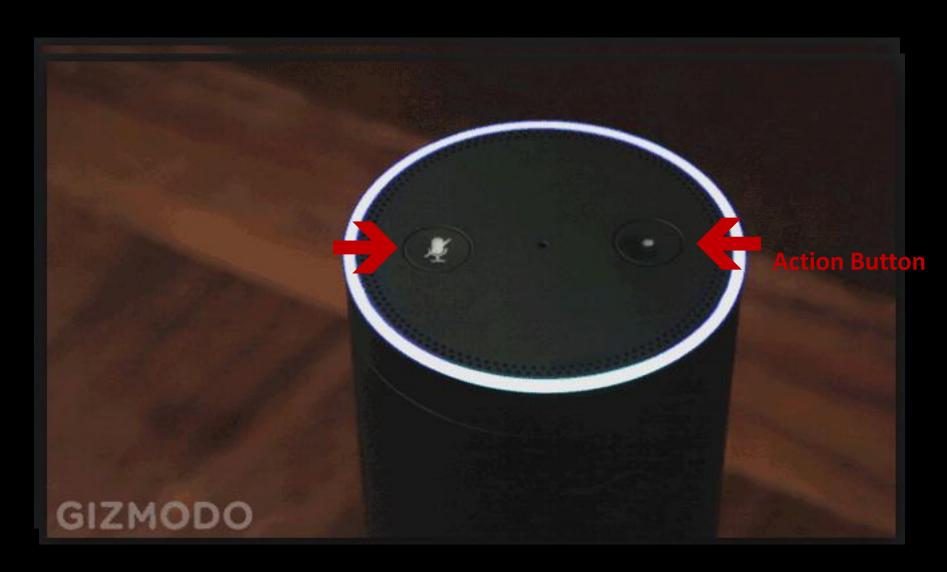
#### What is the Amazon Echo?

- A wireless smart speaker
- A Cloud-based assistant
- Voice controlled (99+ %)
- Has a seven-piece microphone array
- Connectivity: Wi-Fi and Bluetooth
- Released June 23, 2015
- Price \$179.99
- Sales of ~5 million as of Nov 21, 2016





# **Turning off the microphones**



## **How to Set Up the Amazon Echo**

- Download the A-l-e-x-a app to your smartphone or tablet (Fire OS, Android, iOS)
- Turn on the Amazon Echo (plug it in)
- Run the A-l-e-x-a app and connect the Amazon Echo to your Wi-Fi network
- That's it!
- For details see 🔐 🔐

#### **Echo**



# All Cloud-based assistant "Alexa"

Tap



VS Dot

- Speaker
- Plugged in
- A-l-e-x-a—on

- Speaker
- Portable
- Battery
- Tap for A-l-e-x-a

- Tiny speaker
- Plugged in
- A-l-e-x-a—on

For more information see



#### What Can the Amazon Echo Do?

- Play music:
  - iTunes via Bluetooth to iPhone or iPad (iOS)\*
  - Amazon Prime Music
  - Spotify
  - Pandora
- Play radio:
  - NPR
  - BBC
  - TuneIn
  - iHeartRadio

#### It can do more...

- Provide diverse information—just ask...
  - Deliver news
  - Provide weather information
  - Provide sports information
  - Much much more...
- Ask Uber for a ride
- Order pizza from Domino's
- Order goods and services from Amazon.com
- Track orders from Amazon

#### It can do even more...

- Set timers
- Set alarm on the clock
- Tell time
- Track airline flights
- Information from Wikipedia
- Convert units
- Basic arithmetic
- Define words

## Not done yet...

Control various devices



- Lights
- Light Dimmers
- Coffee machines
- Thermostats
- Electric plugs
- Irrigation sprinklers
- Ceiling fans
- Door locks

# And almost finally...

Other devices





- A-l-e-x-a compatible smart home hubs\*
- Security devices (hubs)
- Many commands...









#### **Amazon Skills**

- Amazon has made an API\* available (called Smart Home Skill API)—for third-party developers to create apps for the Amazon Echo
- About 2000 Skills are available, see 🔐 🎎





- Skills enabled with the A-l-e-x-a app
- Create your own Skill, see for the Smart Home Skill Kit

# Samples of Amazon Skills

- DC Metro—arrivals, departures, etc.
- Genesis—remote start your Genesis car



- SciGuy—ask for a science fact
- Top Box—recommended movies & ratings



Ocean Sounds—noise of ocean waves



National Park Finder—find parks by state



Kit—best recommend products (shopping)

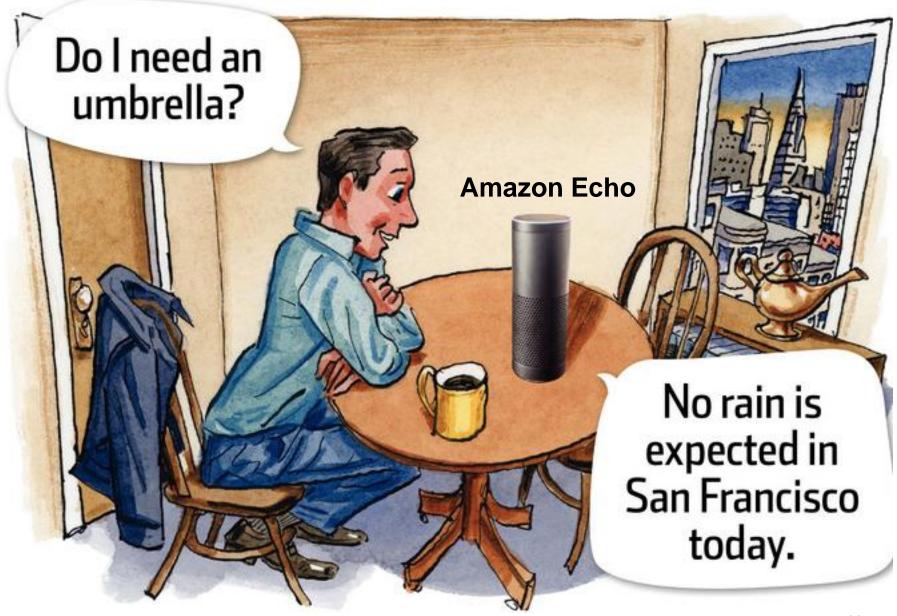


LostThings—locate your Apple devices

# And finally...

- You-know-who adapts to your speech patterns, vocabulary and personal preferences
- Rapid expansion of:
  - new commands
  - Skills
  - information resources
  - hub-based devices

# **Demonstration Time**



#### **Demonstration of Amazon Echo**

- Alexa: Do I need an umbrella today
- Alexa: Define pusillanimous
- Alexa: Set timer for four seconds
- Alexa: How is traffic\*
- Alexa: What's the alarm set for
- Alexa: What is the news today
- Alexa: Wikipedia the moon
- Alexa: more
- Alexa: What's the weather in Bergen,
   Norway

<sup>\*</sup>From my home to the American Chemical Society in Washington DC

#### **Demonstration of Amazon Echo (cont.)**

- Alexa: How do you spell Wikipedia
- Alexa: How far is it to Perth, Australia
- Alexa: What time is it Nürnberg, Germany
- Alexa: What is phone number for the Rexall Drug Center in Vienna
- Alexa: What is the phone number for Dr. Masri-Fridling
- Alexa: What's 72 degrees Farenheit in Celsius

# Demonstration of Amazon Echo (cont.) Music

- Attach iPhone to Amazon Echo: Settings
  - → Bluetooth → Echo-663
- Select/play music on iPhone
- Alexa: Next (previous)
- Alexa: Play Nana Mouskouri\*
- Alexa: Play Johannes Linstead\*
- Alexa: Play Beethoven\*

<sup>\*</sup>From Amazon Prime Music

# Demonstration of Amazon Echo (cont.) Music

- Alexa: Play relaxing Prime Music
- Alexa: Play jazz Prime Music
- Alexa: Play Classical Focus (from Prime Music)
- Alexa: Play Glenn Yarbrough\*
- Alexa: Play Prime Music
- Alexa: Play Pandora Chet Atkins

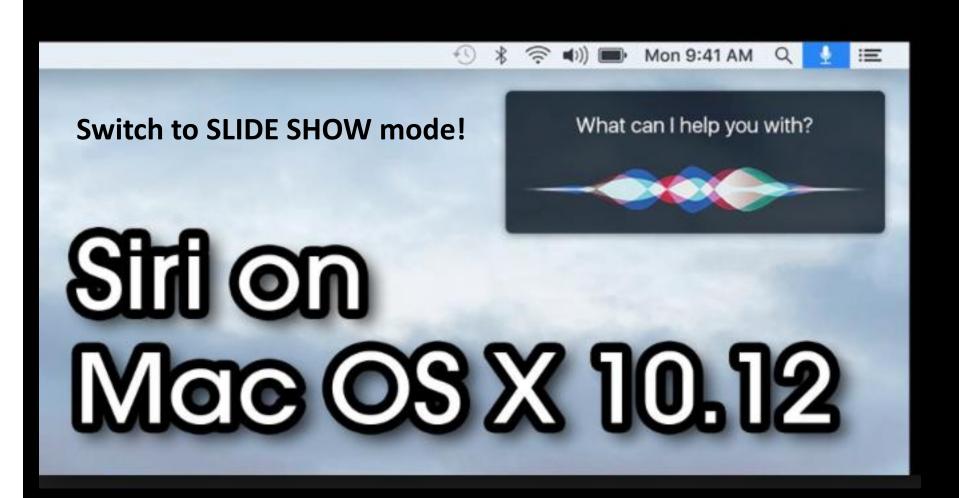
# Demonstration of Amazon Echo (cont.) Trivia

- Alexa: Tell a Christmas joke
- Alexa: Who was Donald Cram
- Alexa: How much does the moon weigh
- Alexa: Surely you can't be serious
- Alexa: What is two to the sixteenth power
- Alexa: What is the value of  $\pi$
- Alexa: Shut up!
- Alexa: How many cups in a gallon
- Alexa: What's the population of Orono, ME
- Alexa: How many calories in carrots

# **New Topic Apple Siri—on Mac Computers**

- Siri is an "intelligent personal assistant" controlled by a natural language user interface
- First available on iOS devices October 2011
- Available on Apple computers Sept 2016
- Envoked by clicking on the Siri icon ( ) on the Dock or Menu Bar—or holding ``Option+Spacebar"
- "Hey Siri" doesn't work on Mac computers

# **Another Demonstration**



## Using Siri on the Mac

- Say: What can you do
- Say: What files have I worked on today
- Say: What files have I worked on this week
- Say: Open Calendar
- Say: Open Contacts
- Say: Open Reminders
- Say: Open Microsoft Word
- Say: Open Google Earth Pro
- Say: Add to Calendar [go Christmas shopping]

## Using Siri on the Mac (cont.)

- Say: Read my last e-mail message
- Say: How much space on my hard drive
- Say: What's the serial number of this Mac
- Say: Tell me about this Mac
- Say: Give me directions to Milford, Maine
- Say: Where is the nearest Pizza Hut
- Say: What is the meaning of scrounge
- Say: Tell me a joke
- Say: What is the International Dateline

# The Competition









- Google Home (Nov 4, 2016) 🔐 🔐 📞
- Microsoft Cortana (Windows 10, Windows Phone 8.1, Microsoft Band, Xbox One, iOS & Android)
- Samsung Scoop (released?)
- Google Now app (Android, Chrome, iOS, Windows, and os x) Luri
- Google Chrome can accept voice input





# **Books**

Title	Author	Paperback	Kindle
Amazon Echo: 2016—The Ultimate Guide to Learn Amazon Echo	Butler, Andrew	\$9.95	\$2.99
Amazon Echo User Guide: Newbie to Expert in 1 Hour!	Edwards, Tom & Jenna	\$9.99	\$0.00
Amazon Echo: 2016—The Ultimate Guide to Learn Amazon Echo in No Time	Jacobs, Steve	\$9.95	\$2.99
Amazon Echo: Easiest User Guide To Master Amazon Echo Fast!	James, Eric	\$9.99	\$0.99
Amazon Echo: The Ultimate Amazon Echo User Guide	Johansen, Andrew	\$11.99	\$0.99
Amazon Echo: Master Your Amazon Echo; User Guide and Manual (Amazon Echo Updated 2017 User Guide	Mckinnon, Andrew	\$9.99	\$2.99
Amazon Echo: 2016 Edition—User Guide and Manual—Learn It Live It Love It	West, Dominic	\$10.97	\$0.99
Amazon Echo: Amazon Echo Advanced Echo User Guide (2016 Updated): Step-by- Step	Wright, Steve	\$9.95	<b>\$2.99</b>

#### References

- Videos about the Amazon Echo





Information from Amazon on Echo



- Comparing Echo, Tap and Dot
- Review of Echo (May 9, 2016)



- Videos about Siri on the Mac
- Second generation Amazon Dot
- Google Home vs. Amazon Echo 🔐 🔐
- Making "Hey Siri" work on the Mac 🔐 🔐



