HOW DO WE COLLECT INFORMATION?

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Sometimes we need information to help us take the right decisions and carry out tasks successfully. But, how do we obtain the information in the first place?

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THE FIRST CENSUS

One ancient example of information gathering is the first census dating back to the Babylonians in 4000 BC.

They used a census as an essential guide to know **how much food they needed** to find for each member of the population.

http://www.wisdomspring.com/ao/xxxxxx-babylon-6.jpg

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PRE-DIGITAL ERA

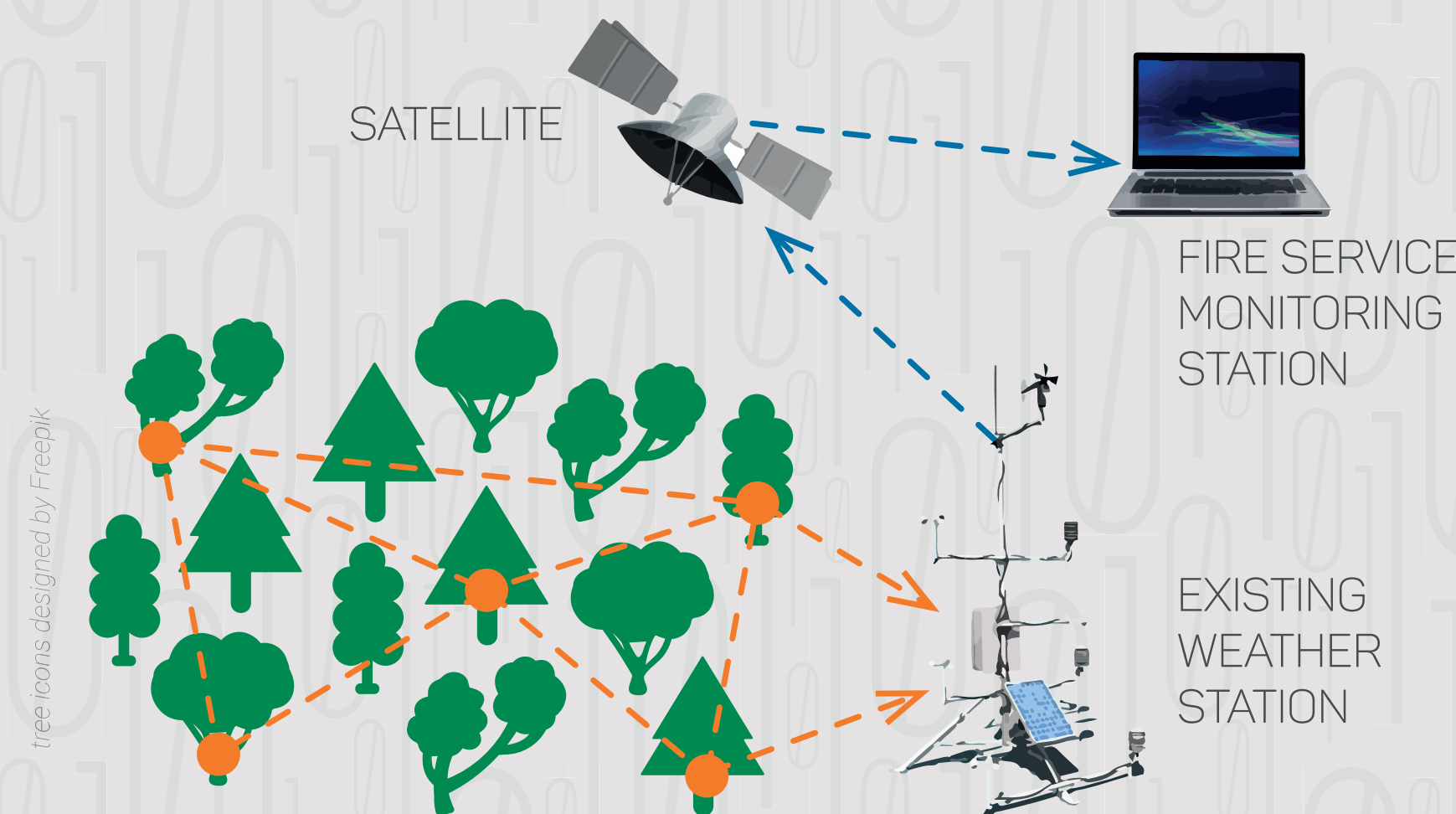http://imagineweb.com.magnalarao?rl.net/corsio/supersize/421-200-11416.jpg

• Information was collected **by hand**
• Prone to **human errors** when gathering, copying or analyzing the data
• Merging data from several distant sources incurred **significant delay** due to transport of paper notes or analog telecommunications
• Analyzing lots of data was a **complex and long process**

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WIRELESS SENSOR NETWORKS

• Nowadays, we can **automate** the process of collecting information with **electronic** devices.
• A wireless sensor network, for example, is comprised of multiple devices that send measurements to a central control unit.

Seismic sensors located on an active volcano may help predict eruptions.

SATELLITE

FIRE SERVICE MONITORING STATION

EXISTING WEATHER STATION

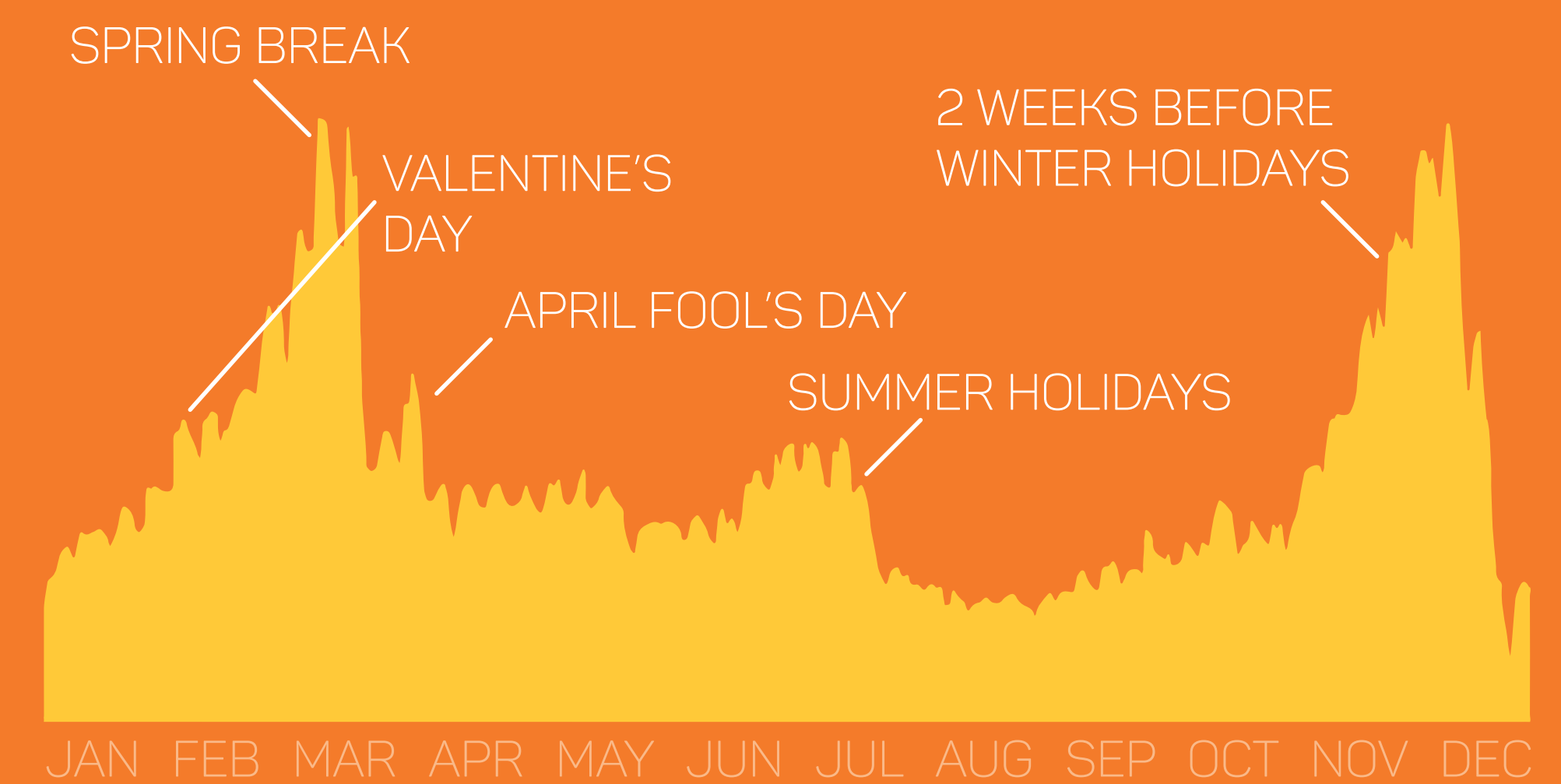*Temperature sensors in a forest could help prevent fires.*

NASA - RADAR WAVES

In the next mission, the Mars Reconnaissance Orbiter will seek liquid or frozen water in the first few hundreds of feet of Mars' crust. It will probe the subsurface using radar waves using a 15-25 megahertz frequency band in order to get the desired high-depth resolution.

INTERNET

• There is a lot of available information on the Internet
• Social networks are also a source of abundant data for **social analysis**.

SPRING BREAK
VALENTINE'S DAY
APRIL FOOL'S DAY
SUMMER HOLIDAYS
2 WEEKS BEFORE WINTER HOLIDAYS

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Peak break-up times according to Facebook status updates

ANTENNA ARRAYS

By **mixing signals** from a cluster of comparatively **small telescopes** rather than a single very expensive monolithic telescope, astronomical interferometers achieve high-resolution observations.

SMART METERS

A smart meter is an electronic device that records electricity consumption in time and sends this information back to the utility provider for monitoring and billing.

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WHAT IS NEXT?

• Use of sensors for monitoring different aspects of human life

• **Smart houses** with sensors in every appliance

• Body wireless sensor networks for **healthcare monitoring**

https://communityneewsvictoria.files.wordpress.com/2015-06/digital-media.jpg

BIG DATA

• How will we store the amounts of information we collect in the future?
Today, within **the last 200 seconds** this is what happened on social medias:

Twitter	NETFLIX	Dropbox	YouTube
1 140 000	77 200	2 314 800	462 800
Tweets	Hours Watched	Files Uploaded	Hours Watched
Snapchat	WhatsApp	Facebook	Instagram
1 620 400	43 981 400	10 995 200	138 800
Messages Sent	Messages Sent	New Posts	Picture Uploaded

... and more than **4 500 000 GB** of data was transferred over the internet!
Go check the numbers in real time on **http://pennystocks.la/internet-in-real-time/**