what is software innovation?

Daniel Jackson · TedX · MIT · Dec 16, 2023

what does innovation in software **look like**?

what makes a software product **successful**?

story #1:
TBL's Web
(1989)

what was novel about the web?

World Wide Web

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: on the browser you are using

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: A list of W3 project components and their current state. (e.g. Line Mode ,X11 Viola , NeXTStep , Servers , Tools , Mail robot , Library)

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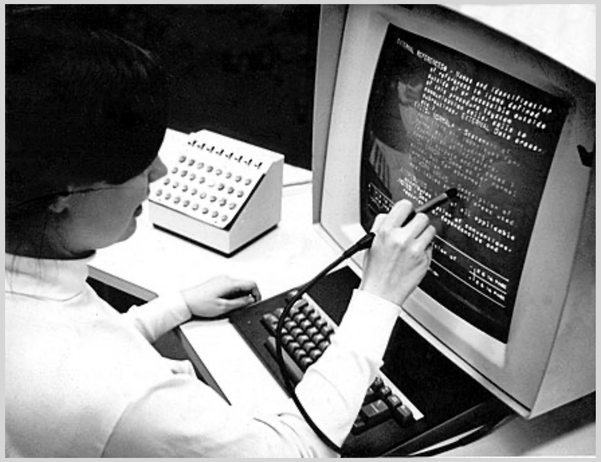
Getting code
: Getting the code by anonymous FTP , etc.

http://info.cern.ch/hypertext/WWW/TheProject.html

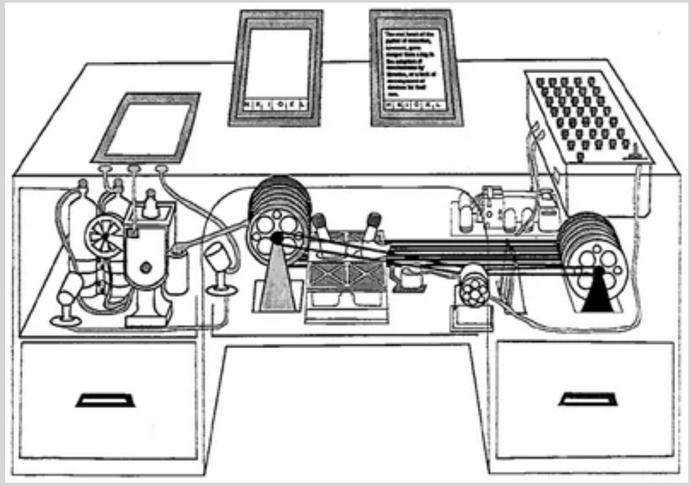
the technology?

NeXT computer
660MB hard disk
Motorola 68030, 25MHz
17” monitor with Display Postscript
built in ethernet connectivity

all old ideas?



Hypertext Editing System
(Nelson & van Dam, 1967)

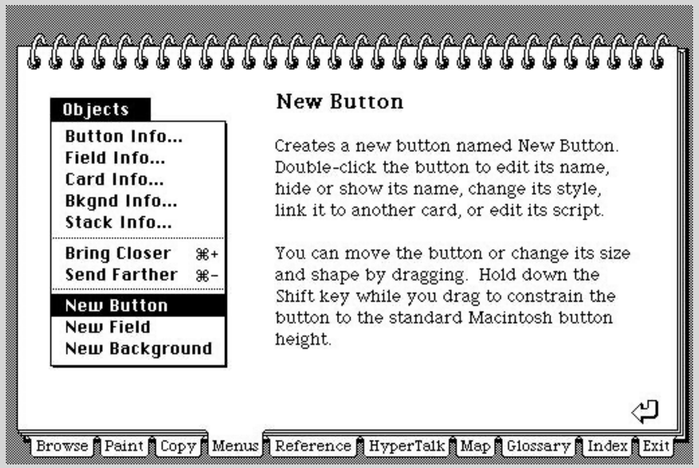


Memex
(Vannevar Bush, 1945)

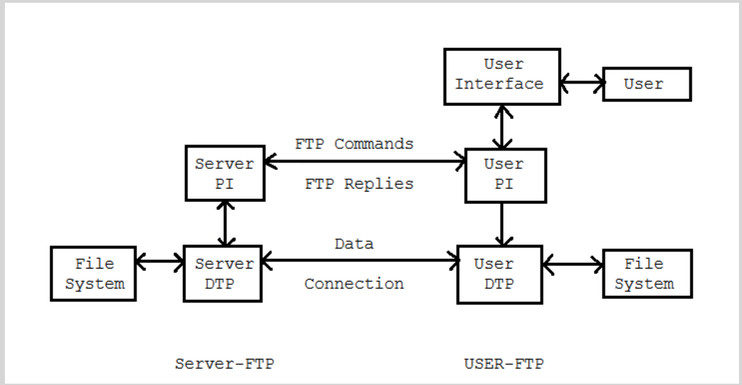
```
<!DOCTYPE motd [ <!E
<motd>
<!-- created: 2003-12-12-->
  <sentence>Do not throw
  out the <keep>baby</>
  with the
  <refuse>dirty</>,
  <refuse>stinky</>,
  <refuse>bathwater</>.
  </>
  <!-- finish this later-->
</motd>
```

SGML

SGML
(Charles Goldfarb, 1986)



Apple HyperCard
(Bill Atkinson, 1987)



File Transfer Protocol
(Abhay Bhushan, 1971)

the novelty was... the URL!

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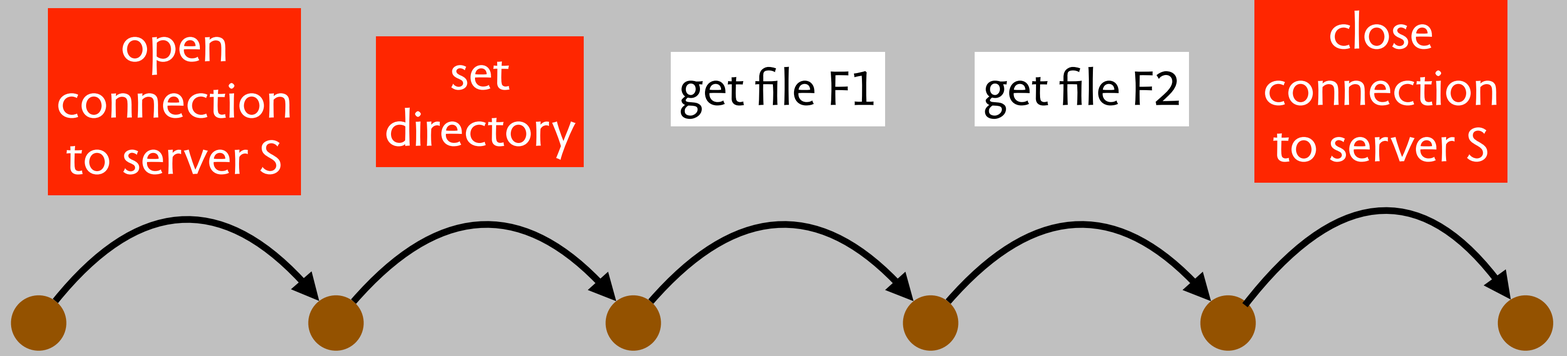
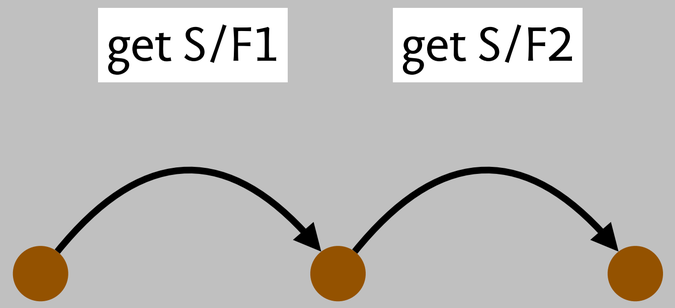
key concept: the URL



old scenario with annoying constraints



concept allows new scenario with constraints removed

story #2:
iPod (2001)

what was novel about the iPod?

Apple iPod
(2001)

a new industrial design?

Apple iPod
(Jony Ive, 2001)

Braun Pocket Radio T3
(Dieter Rams, 1958)

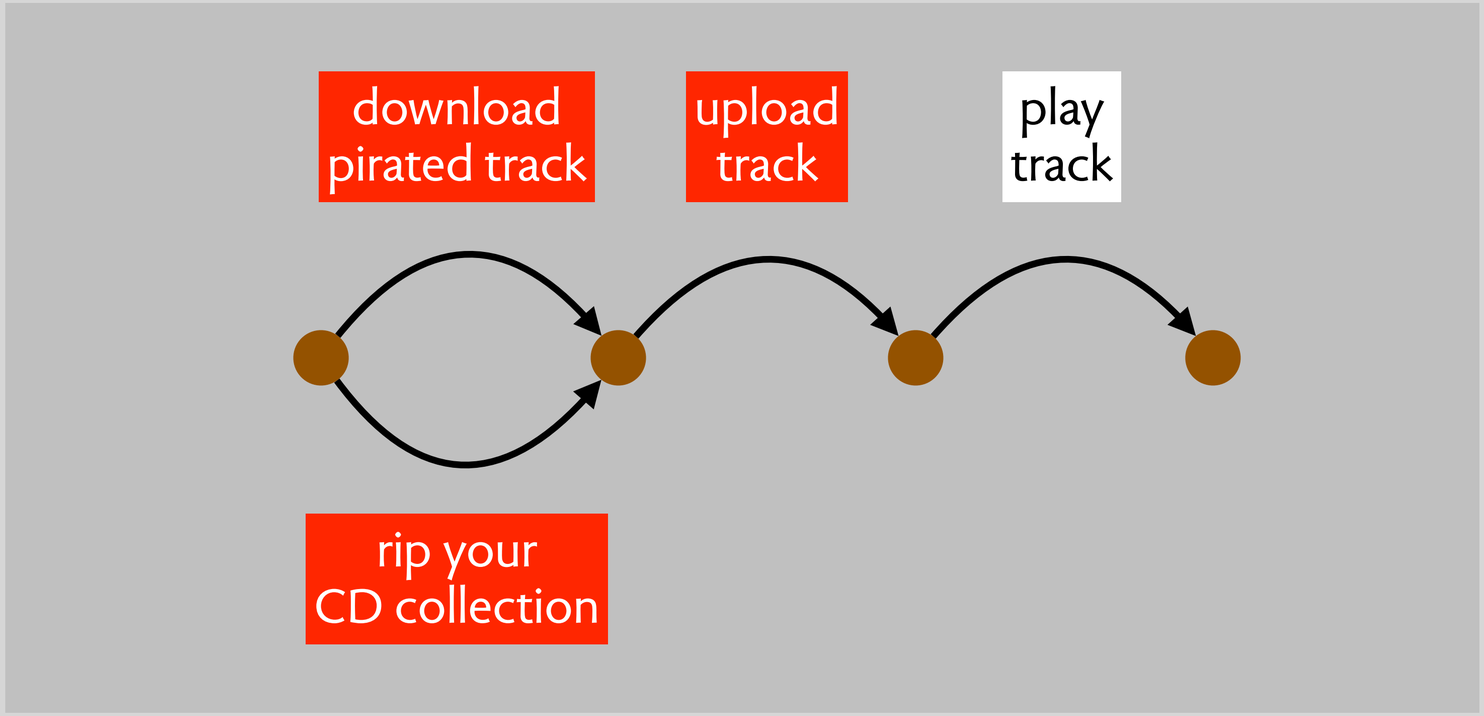
a technology breakthrough?

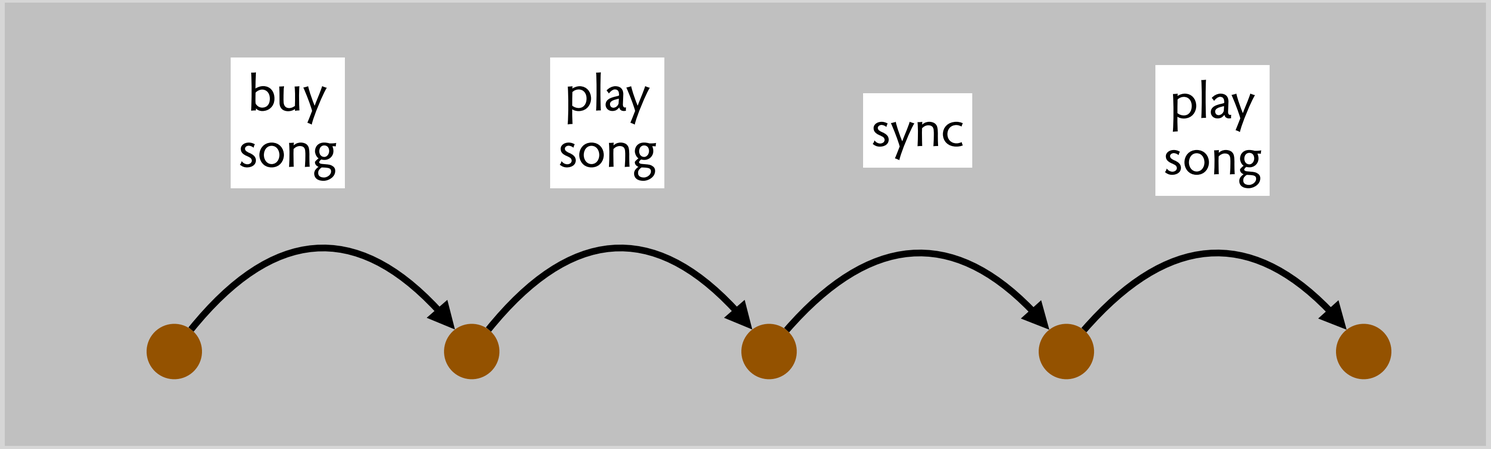
iPod 5GB drive
(Toshiba, 2001)

FireWire serial bus
(Apple, 1995)

Personal Jukebox 5GB drive
(DEC, 1999)

key concept: the song

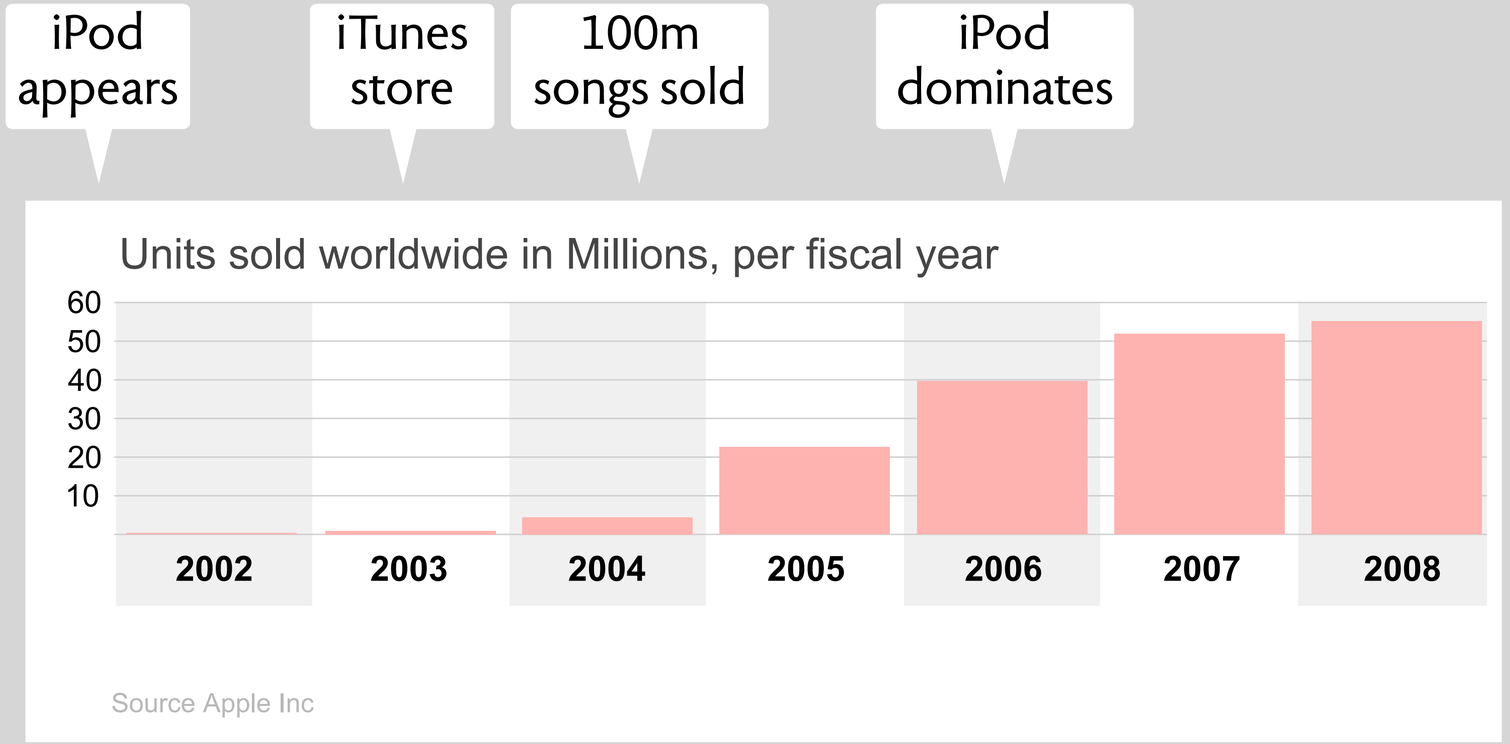




supporting cast: iTunes

iTunes Media Player (2001); iTunes Music Store (2003)

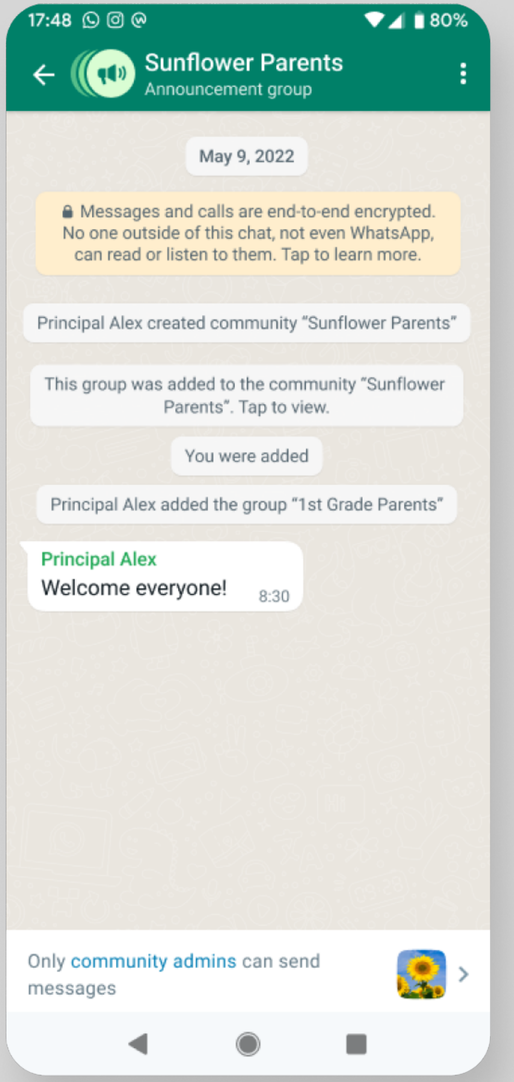
explosion in sales came after iTunes took off



RIP 2d gen iPod Shuffle

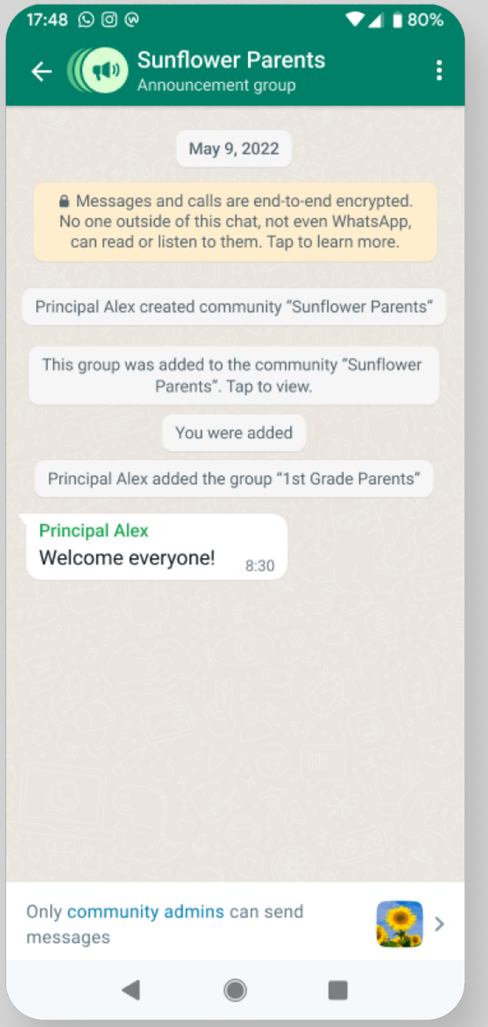
story #3
WhatsApp
(2009)

what was novel about WhatsApp?



WhatsApp (2009)

was it free texting?



WhatsApp (2009)

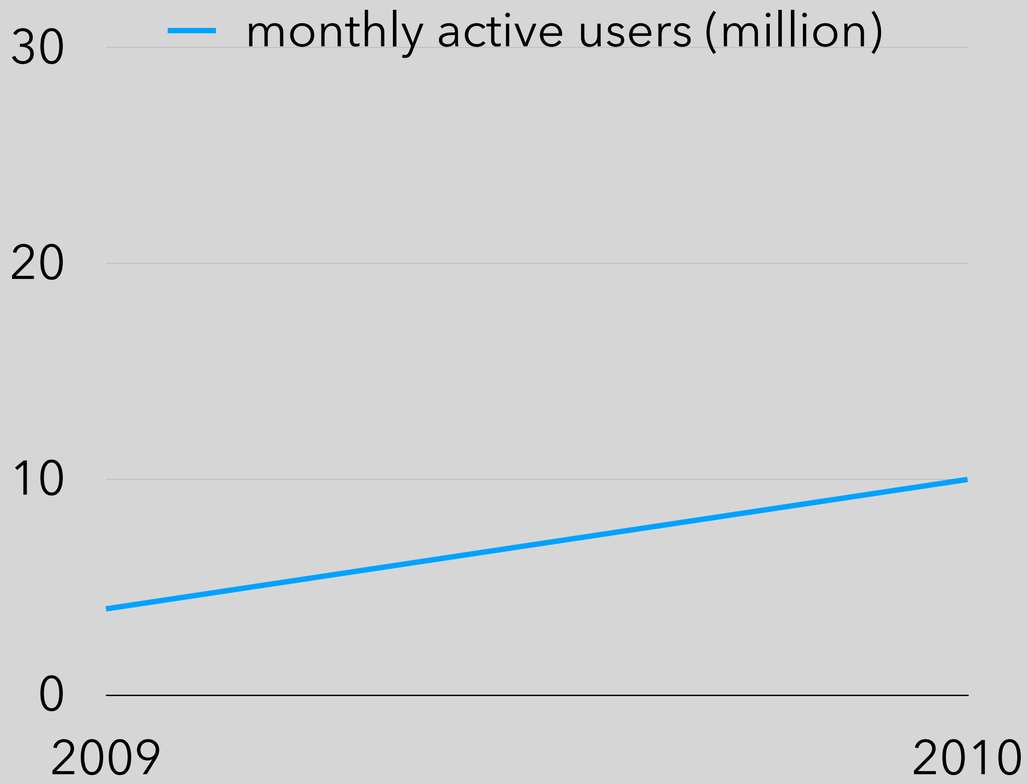
first free-texting app
TextFree/Pinger (2006)

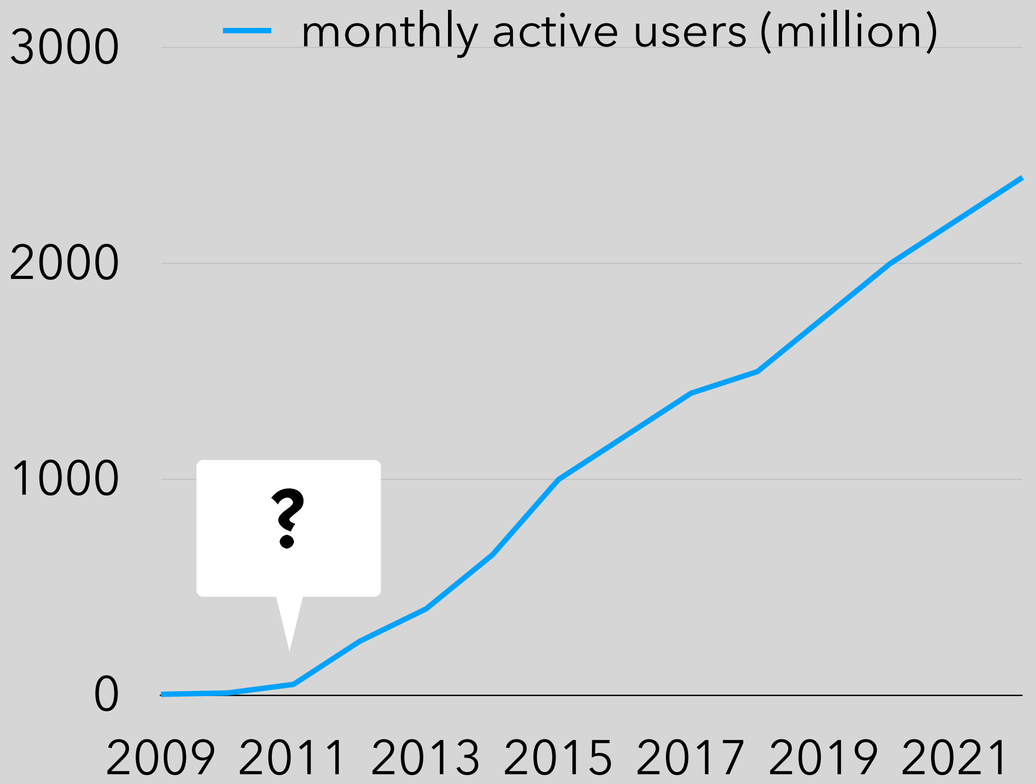
whatsapp's big moment

WhatsApp @WhatsApp

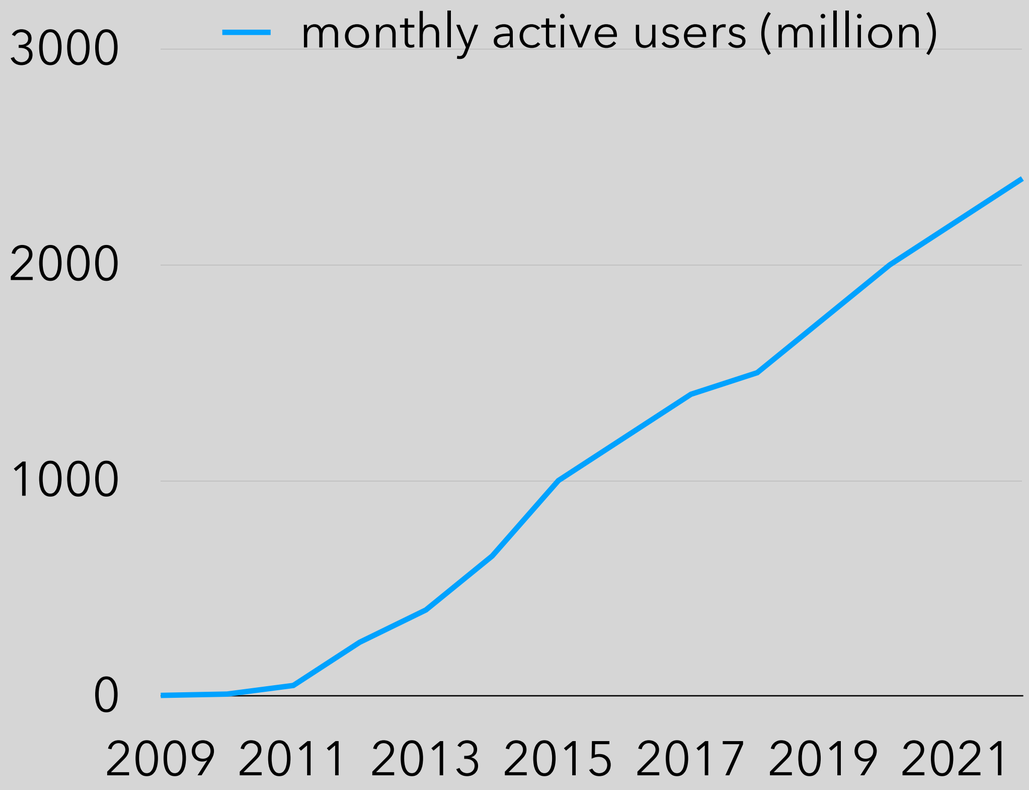
Group chat is now live for iPhone and BlackBerry in versions 2.6 (our Android client update with group chat is coming in 12 hours)

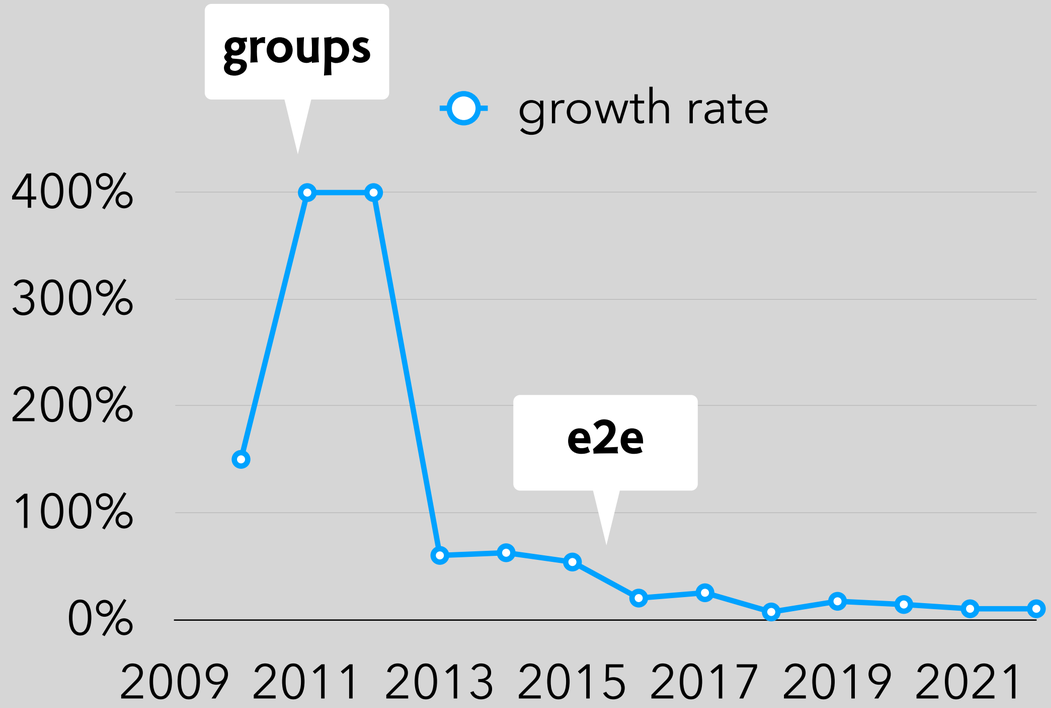
1:08 AM · Feb 10, 2011





growing with groups

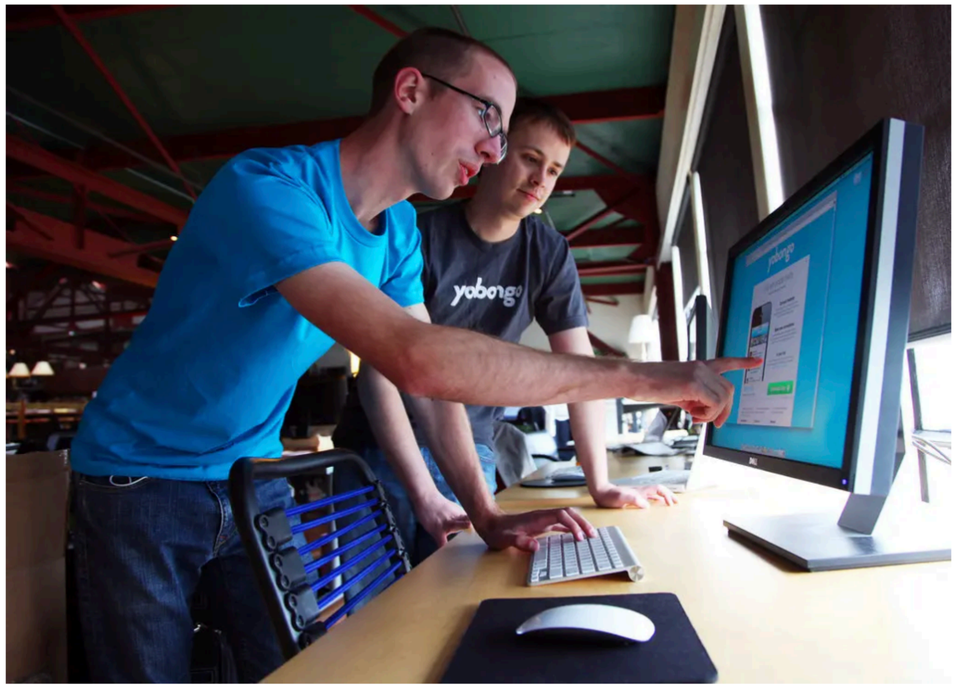




what was happening in 2011

Start-Ups Are in a Rush to Bring the Chat Room to the Smartphone

Share full article



Caleb Elston, left, and David Kasper, co-founders of the social messaging site Yobongo, in the company's offices in San Francisco. Jim Wilson/The New York Times

By Jenna Wortham

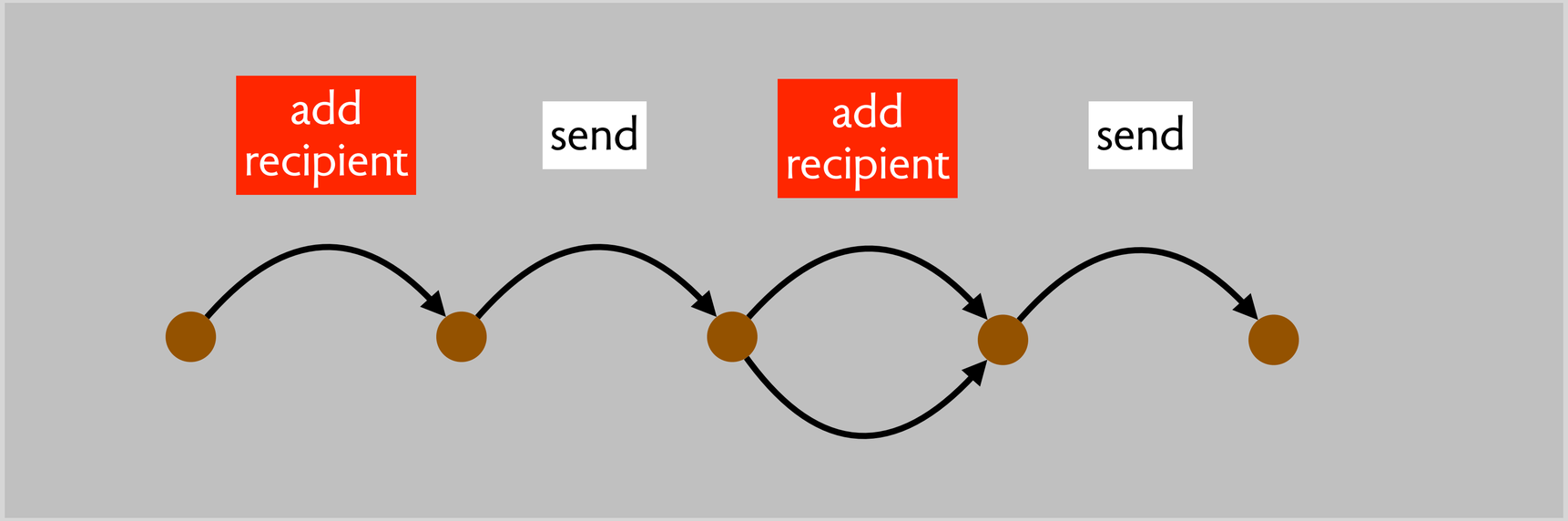
March 10, 2011

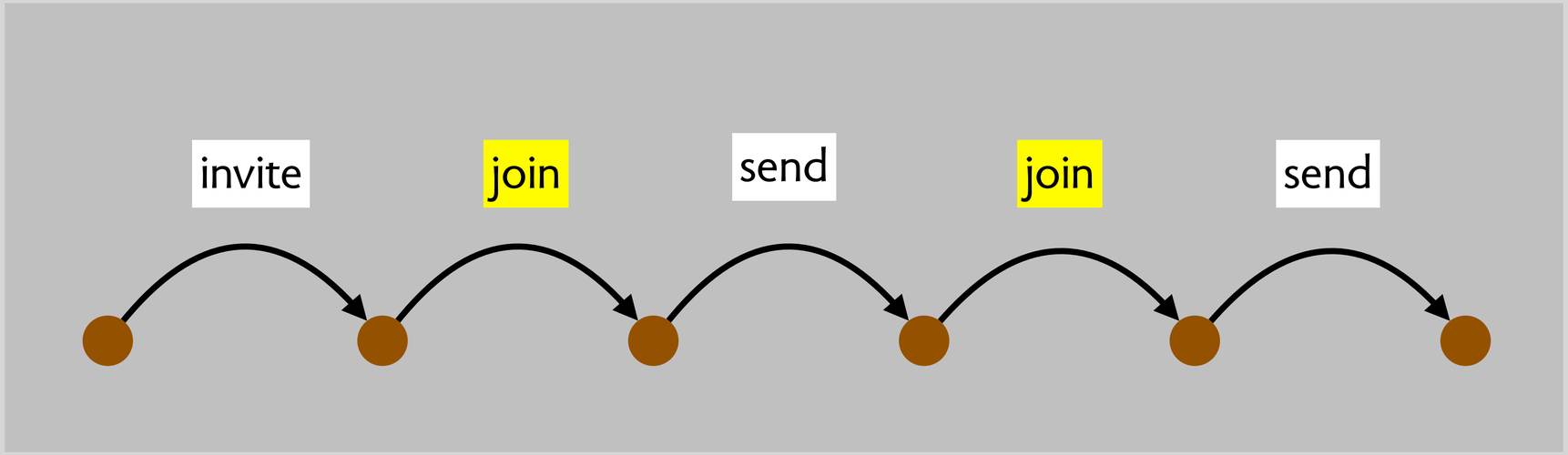
GroupMe

Beluga

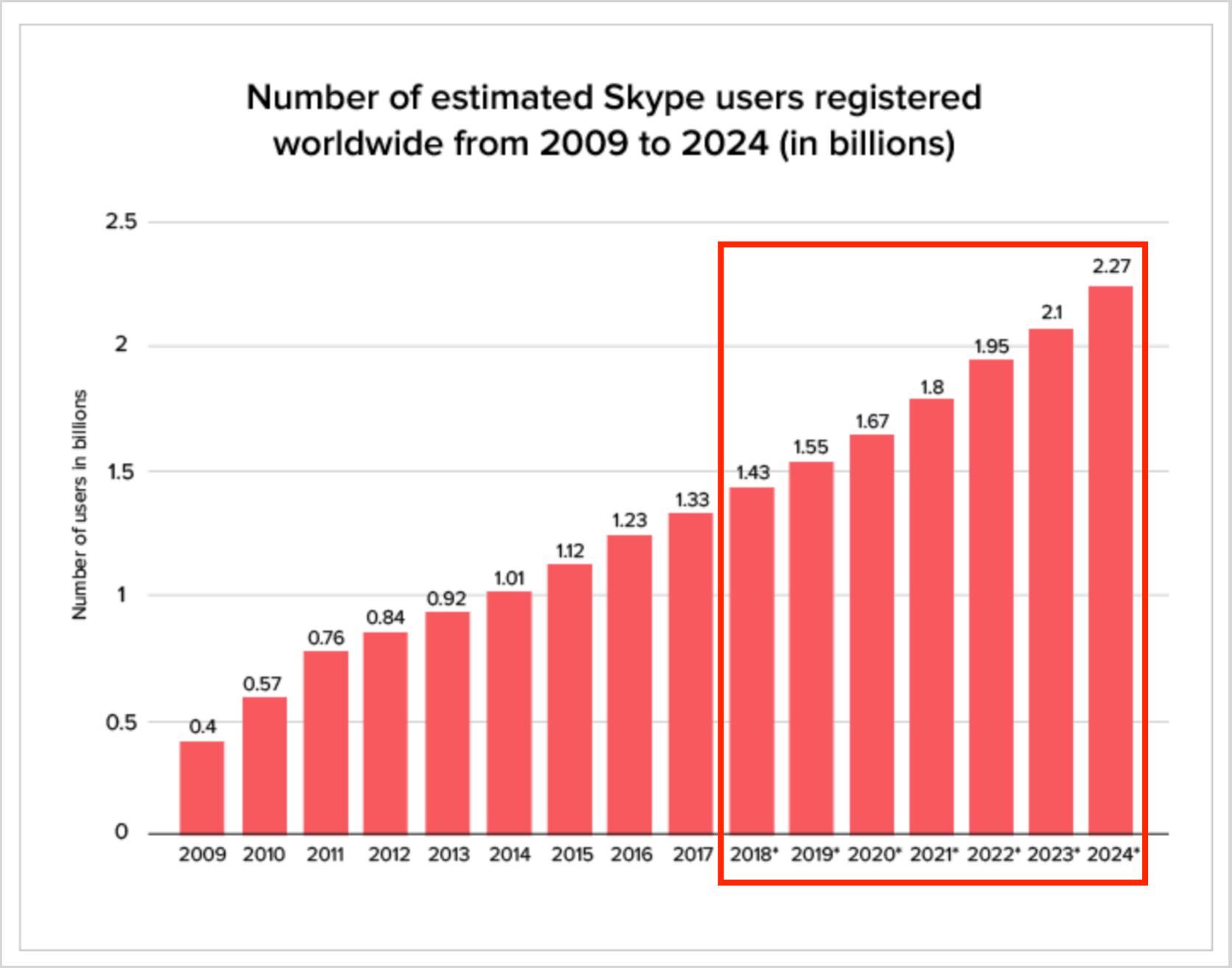
Yobongo

key concept: group





story #4
Zoom (2013)

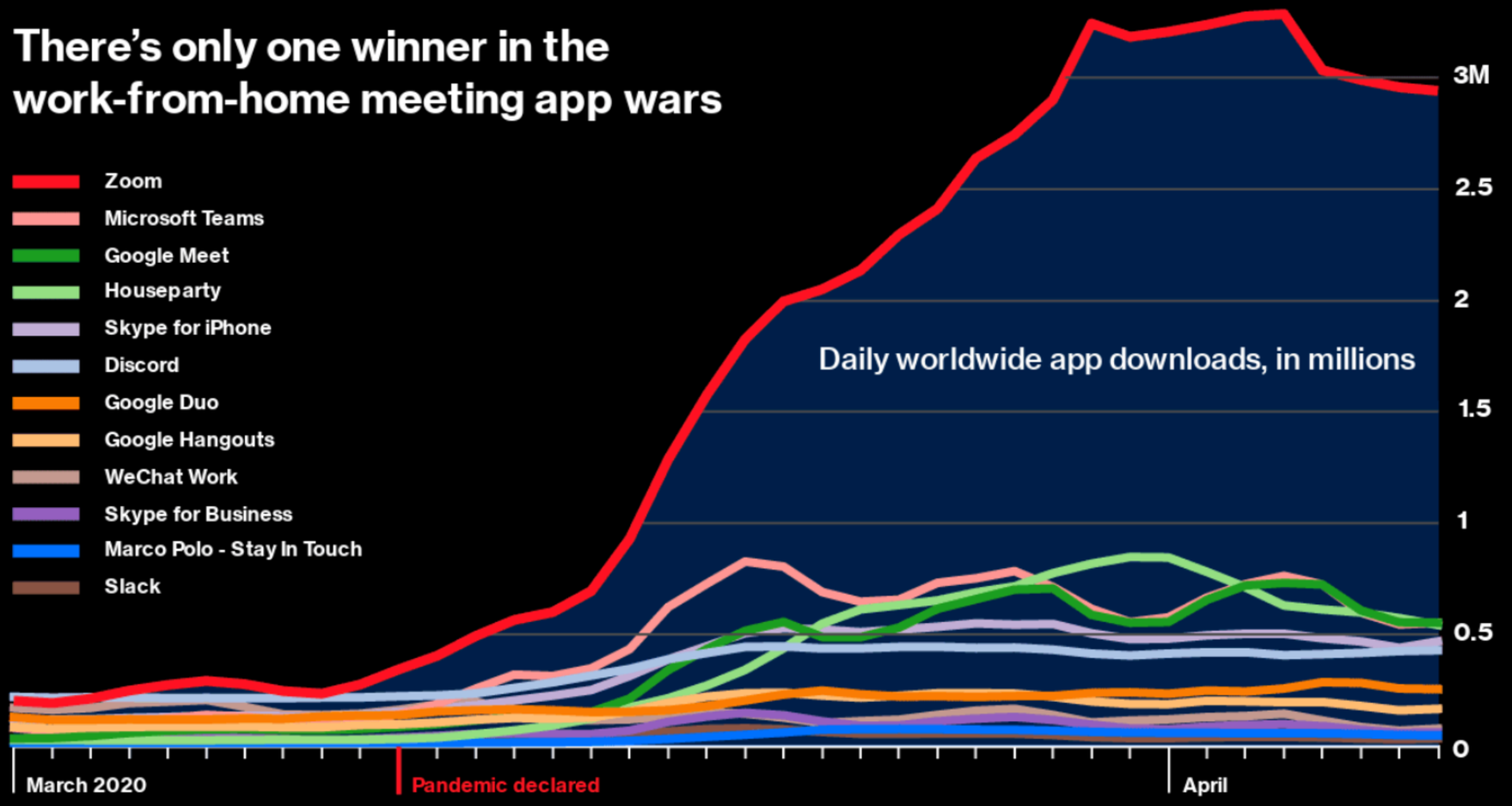


from Statistica: 2018-2024 estimated

Covid-19 / Zoom-a-Zoom-Zoom

BBOViz
Covid-19

There's only one winner in the work-from-home meeting app wars



Source: Apptopia

BEN SCHOTT

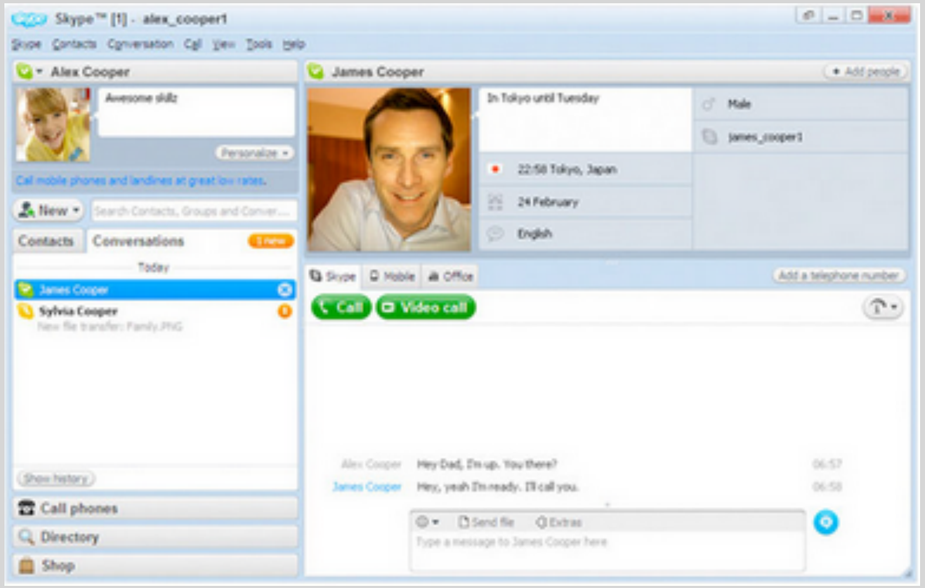
BloombergOpinion

what was novel about Zoom?

March 31, 2020

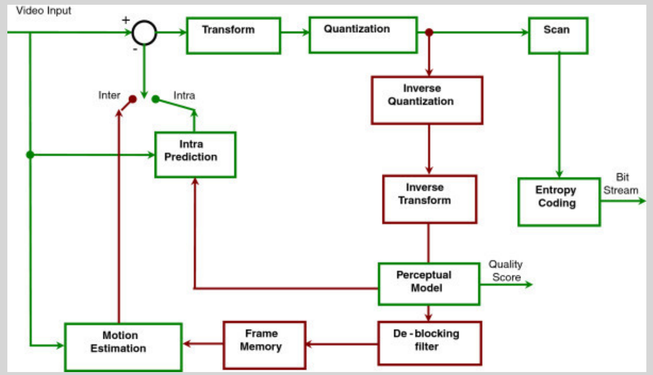
were video calls new?

Picturephone (1964)



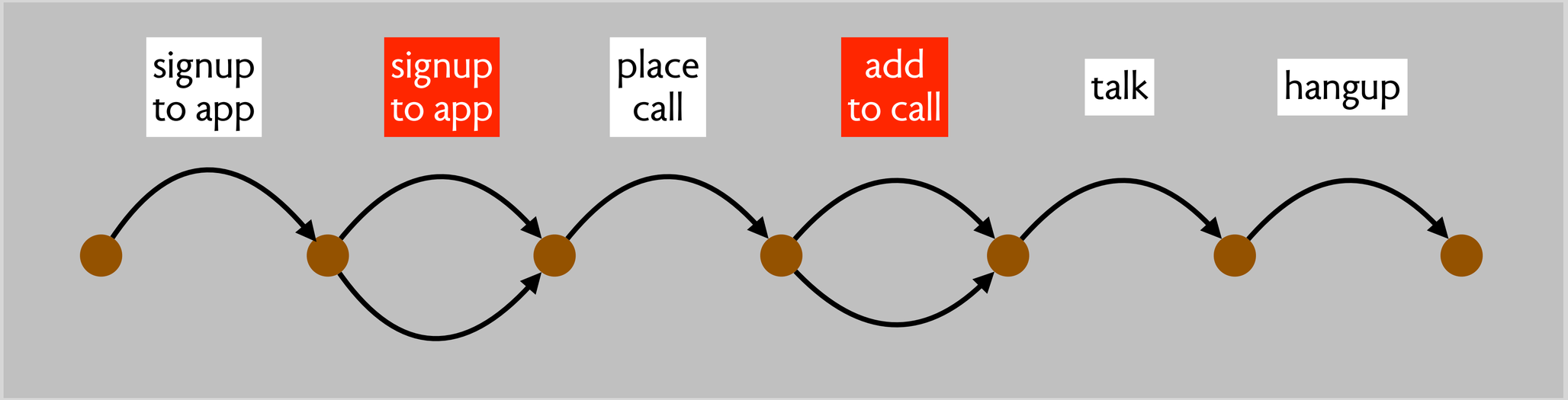
Skype (2009)

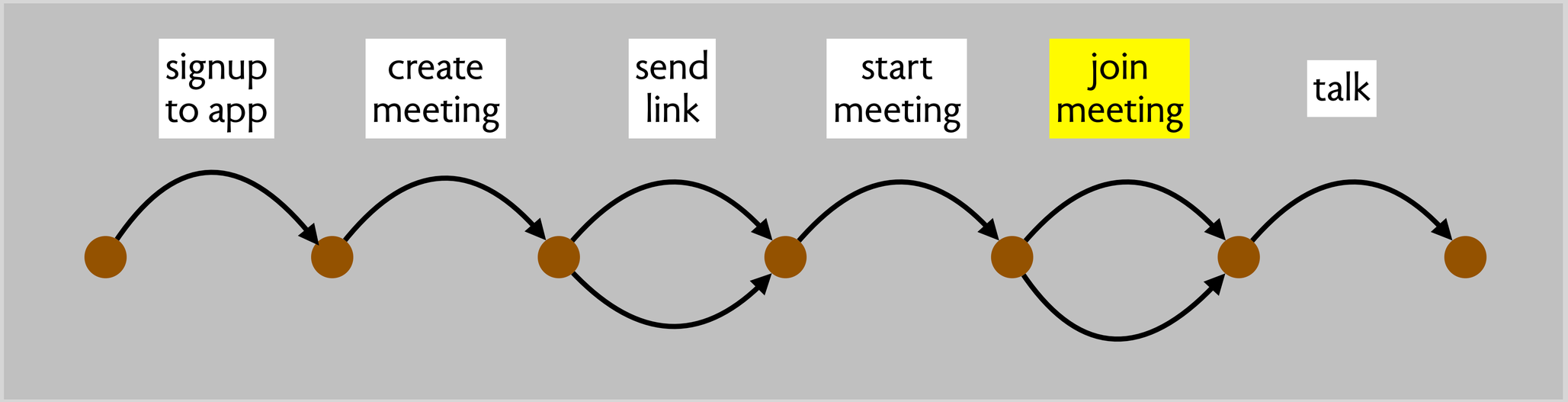
QuickCam (1994)
first commercial webcam



H.264 Video Codec (2003)

key concept: meeting





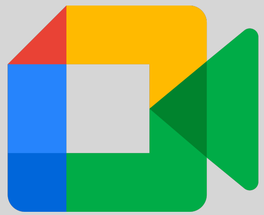
tracing zoom's meeting concept

Skype
initially P2P (2003)
Microsoft (2013)

FaceTime
Apple (2010)

Google Hangouts
in Google+ (2011)
own product (2013)
Duo replaces (2016)

Zoom
Eric Yuan (2013)



Google Meet
launched (2017)
absorbs Duo (2022)

Microsoft Teams
launched (2017)

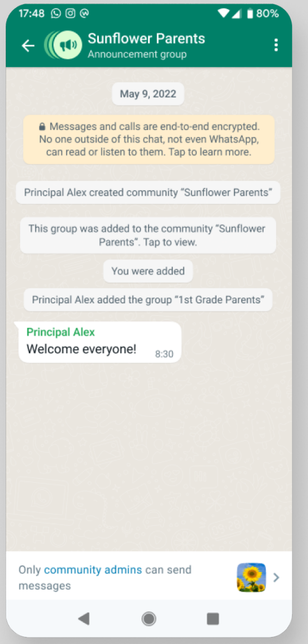
Join.me
LogMeIn (2010)

meeting concept

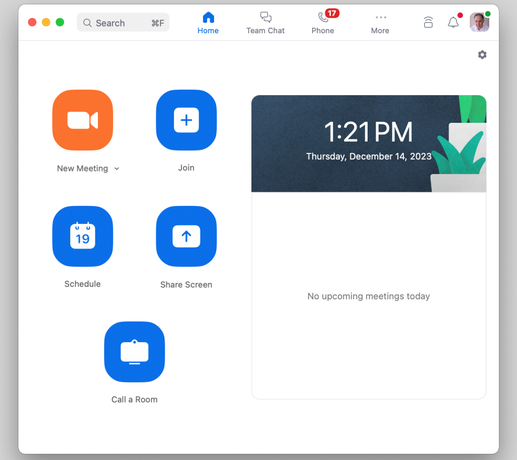
meeting concept
added to Teams
June 2022?

takeaways

each innovation has a key concept at its core

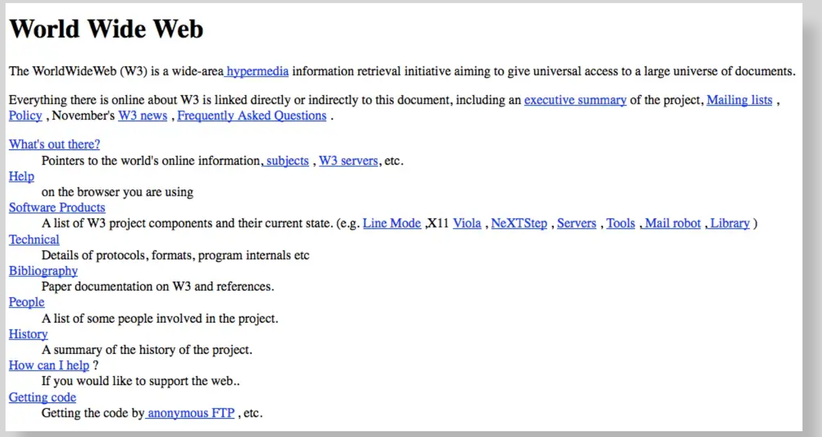


Group



Meeting

Song



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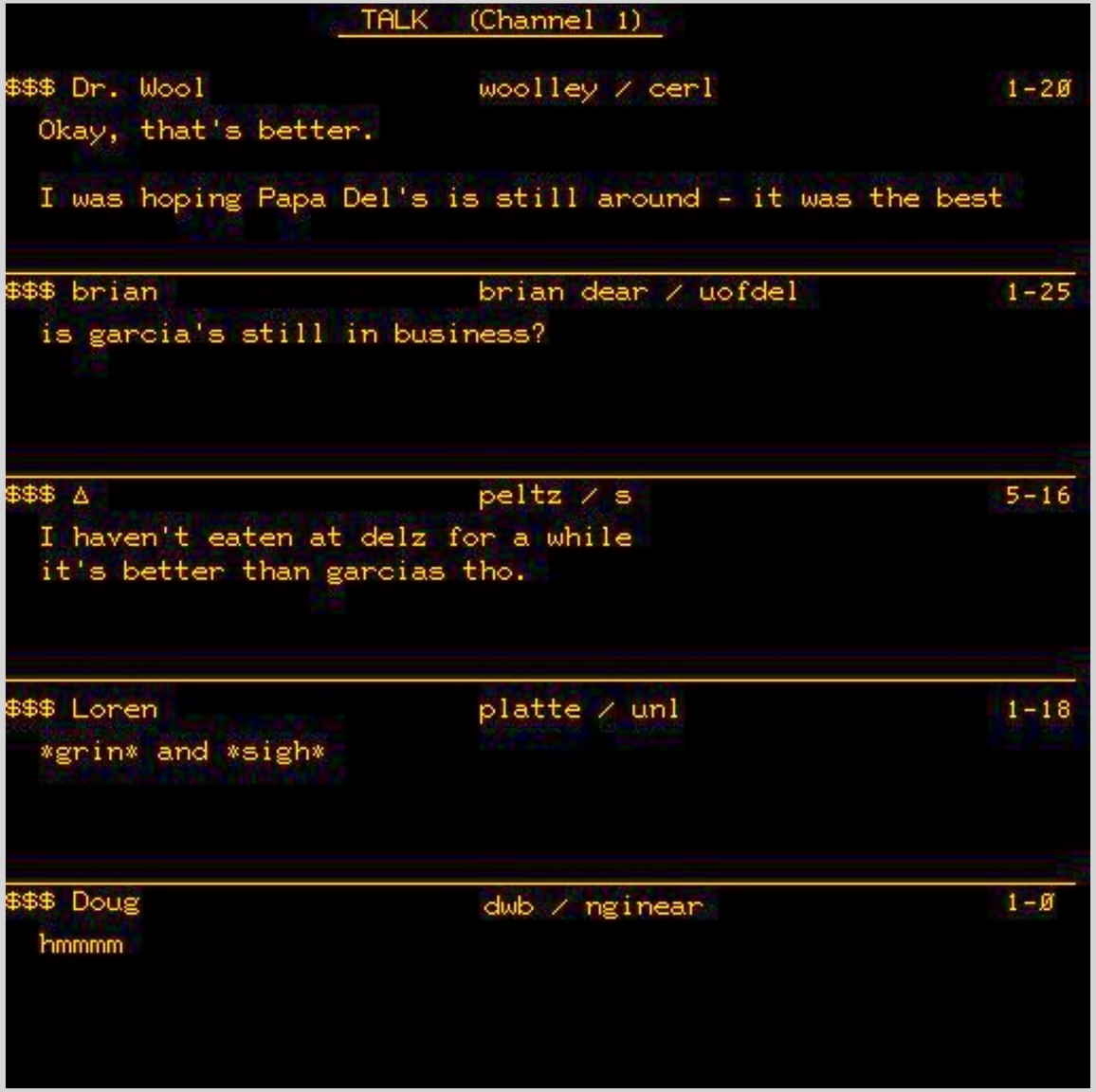
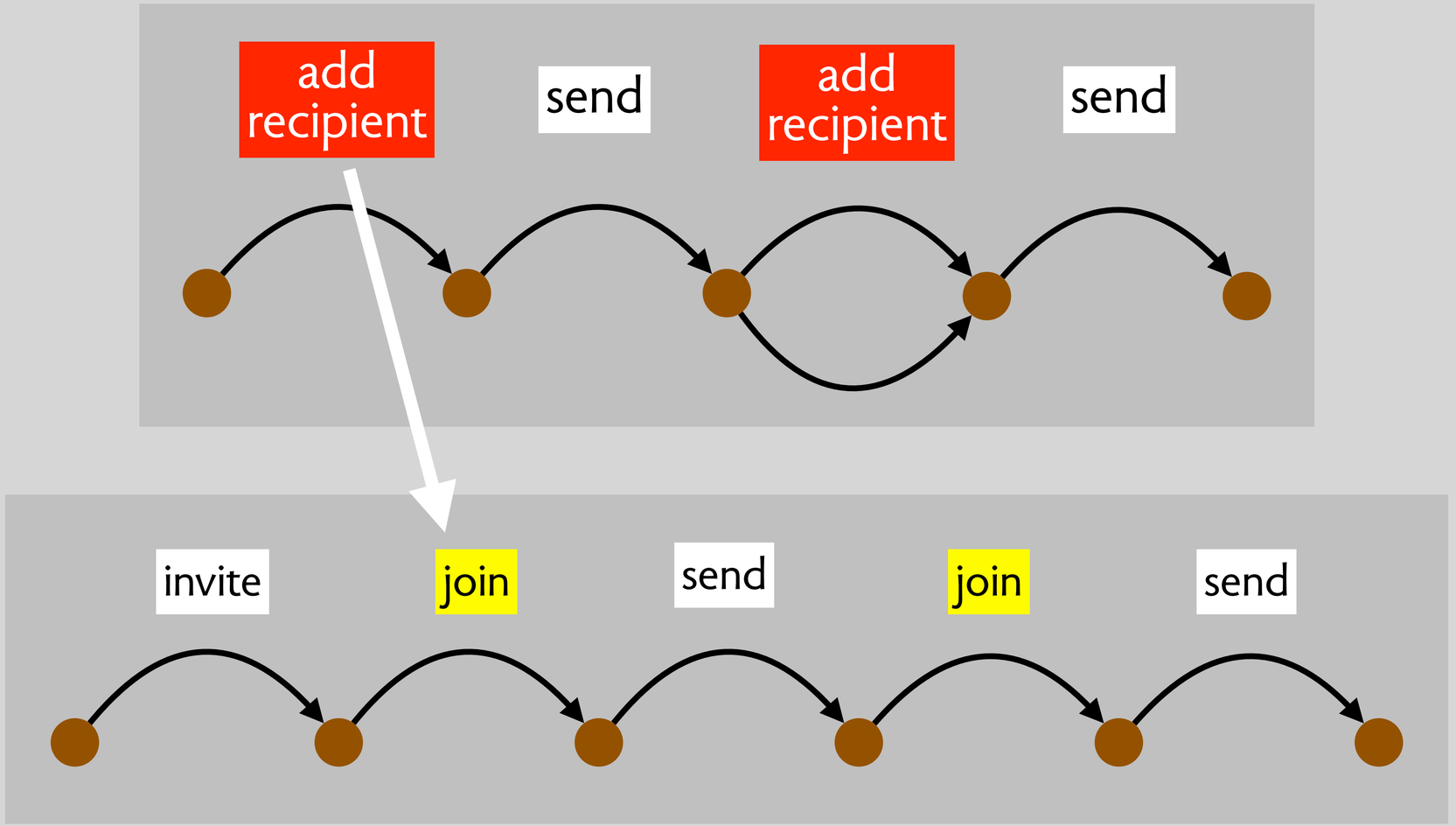
URL

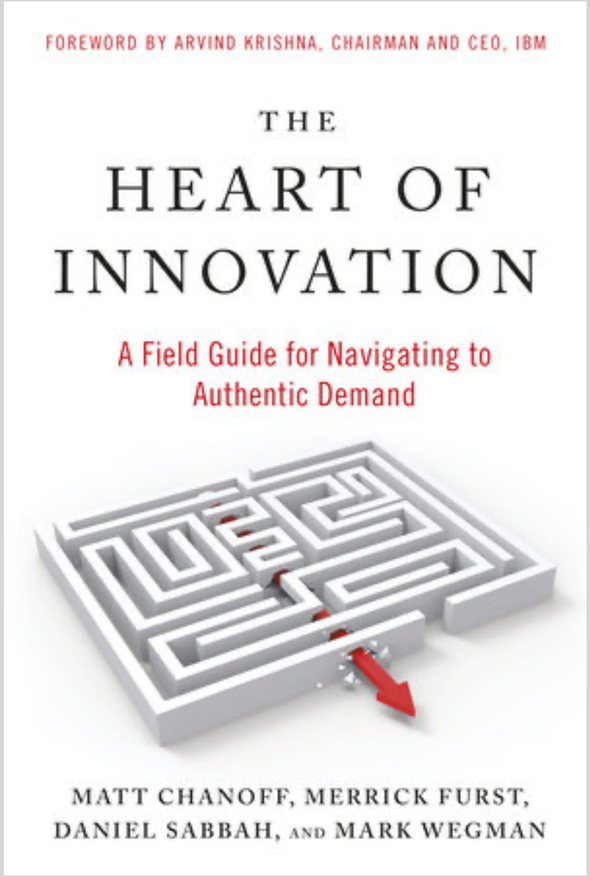
often concepts aren't new



Talkomatic (1973): first Group concept

concepts undo constraints





"not nots":
it's **not** OK to **not** have
group functionality

key concepts are **necessary** but not **sufficient**

recipe for success =

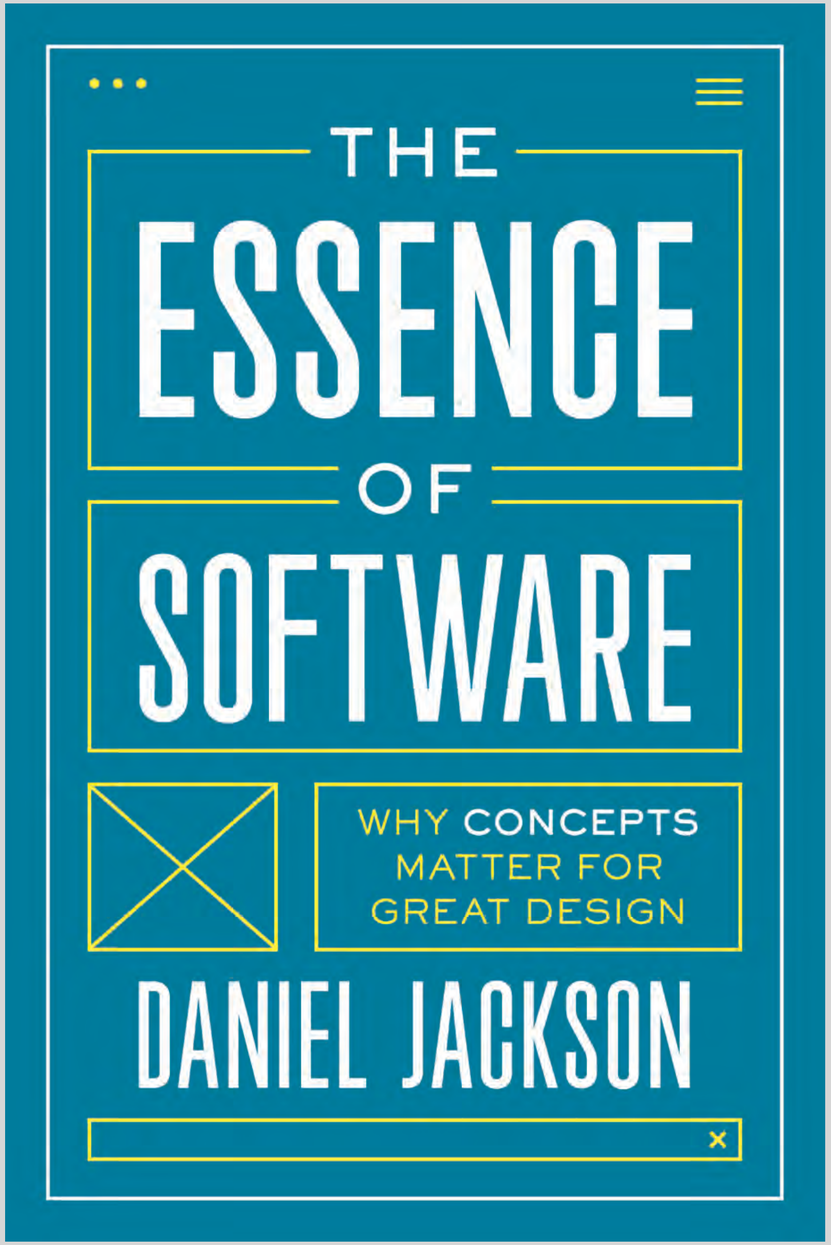
authentic demand — a "not not" constraint

+ concept — removes the constraint

+ usable design — easy to use, robust, aesthetic

+ available technology

shameless plug



https://essenceofsoftware.com

why Zoom is broken after all

dark concepts: going rogue

what conceptual models missed