PKI and Applications (PKIA 2017)

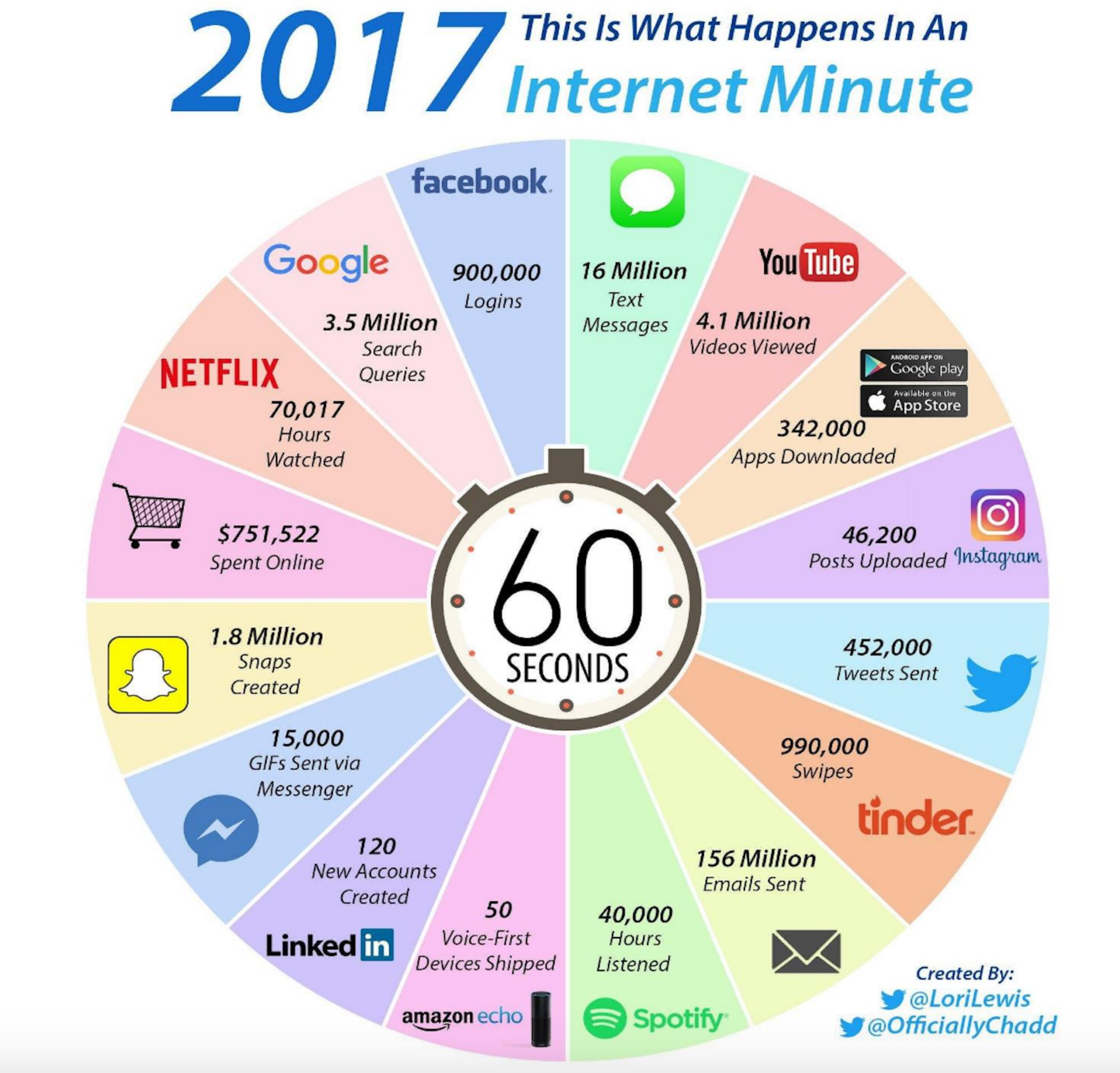
Jagdeep S Kochar

“The most profound technologies are those that disappear.

They weave themselves into the fabric of everyday life until they are indistinguishable from it.”

- Mark Weiser, Chief scientist, Xerox, 1991

Internet Today



Internet (Security) Today

- A computer connected to the Internet is exposed to a likely cyberattack every 39 seconds (Univ of Maryland)
- 37% of UK businesses experience Cyber attack or security breaches atleast once a month
- Predicted Global annual Cost of Cybercrime is USD 4.5T
- 78% of people claim to be aware of the risks of unknown links in emails. And yet they click anyway
- 91% of Hacks Started With a Phishing Email
- Expected Spent on Cybersecurity to be USD 1 Trillion in the next 5 years

And yet,

Only 29% of the companies surveyed have written down cybersecurity policy

PKI Through History

- Diffe-Hellman and RSA in 1976-78
- First Electronic Transaction Laws (Utah 1995)
- Indian IT Act of 2000
- Various Applications: eProcurement, MCA21, Income Tax and others: 2005 to 2009 and continuing
- UIDAI and Aadhar (2009-15)
- eSign 2015-16 and continuing
- Algorithms based on ECC

Is PKI one of those profound Technologies?

- VPNs connecting enterprise Networks
- SSLs for payment web pages through the world
- E-Passports enabled by PKI
- Payments across the world: SWIFT system
- Payments and settlement in India (Check Truncation System, RTGS, NEFT)
- Several G2G, G2B and G2C applications in India

Survey on Obstacles to PKI Deployment and Usage

	Major Obstacle %	Minor Obstacle %	No Obstacle
Software Applications: Don't support	54	33	10
Costs too high	53	34	12
Poorly understood	47	41	11
Poor Interoperability	46	39	12
Too Complex	46	39	13
Hard to Use	43	42	13
Too much legal work	25	50	22
Hard for IT to maintain	20	55	21

eSign

- eSign promises to be one of those profound technologies which work under the hood
- Based on Aadhar, almost ubiquitous in India
- Low cost of usage
- Easy to deploy
- Can be deployed with practically all online applications

Thank you