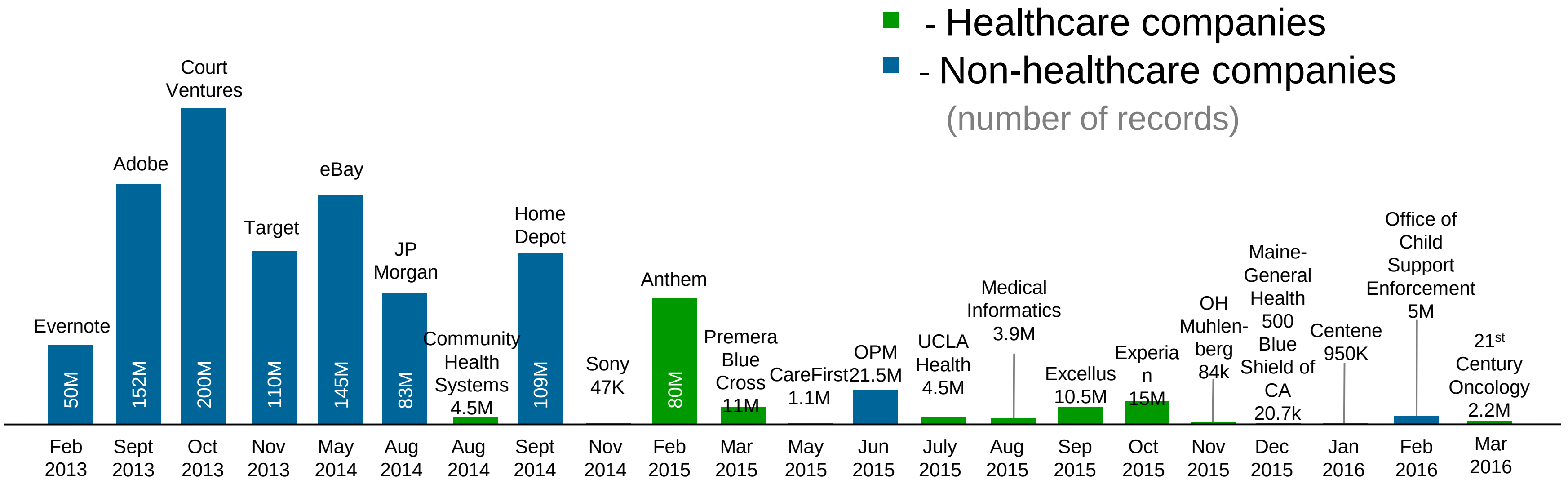
Healthcare Increasingly Targeted by Cyber Criminals

Medical insurance information is more valuable than credit card information



Recent Healthcare Breaches

Premier Healthcare

- January 4, 2016
- Password-protected but **unencrypted laptop** stolen from billing department
- Stole 205,748 records

Hollywood Presbyterian

- February 5, 2016
- Attackers infected computer systems with **ransomware** that encrypted patient information
- Paid $17,000 in ransom

MedStar Health

- March 28, 2016
- **Malware** affected workstations and caused **network-wide shutdown**
- Closed 10 hospitals and over 250 outpatient facilities for 5 days

Cybersecurity Threat Actors

	CYBER CRIME AS A SERVICE	ORGANIZED CRIME	STATE-SPONSORED	HACKTIVISTS
Motive	Financially motivated, paid % of profit	Financially motivated	Research, espionage and **sensitive proprietary information**	Motivated by social justice causes to seek confidential information to **defame or damage an enterprise**
Characteristics	**Allows others to rent infrastructure** for attacks: botnets, phishing tools, and vulnerability scanning of targets	Aim to **collect ransom, personal data, including medical records, credit cards and social security numbers** Typically have an **industry focus** Efficient, **profit-focused quick attacks** with **high return on investment** Increasing sophistication using denial of service **ransomware**	**Highly-skilled** and **highly-persistent** groups with **unlimited resources** Employ **sophisticated and previously unknown methods** (e.g., custom malware) Pursue and achieve **specific objectives** Maintain a **low profile** to cover their tracks and remain in the network for months, if not years	**Unstructured** coalitions of individuals that come together based on **common cause** Rely on **social engineering** techniques Employ **less sophisticated** attack methods due to resource limitations Engage **armies of infected computers** available in the dark web

Evolving Attack Vectors

Social Engineering	Exploiting human nature	Email phishing, spear phishing and whaling; telephone and in person fraudulent representations
Internet Surfing	Malware-laced Internet pages, links & downloads	“Drive-by” and hidden malware
Credential Theft	Exploiting stolen user IDs & passwords	Elevated access accounts (system and database administrators, report writers) present greatest risk
Network	Disrupt network traffic, or breach network	Movement to the cloud expands paths attackers can take, and Denial of Service attacks are challenging to prevent
Software bugs	Software bugs, and/or unpatched systems	Provide breach entry points. Requires ongoing work to keep versions up to date and to apply patches across complex enterprises
Configuration errors	Systems with configuration errors	Requires constant testing and assessment of applications and infrastructure. Biomedical devices are a special challenge