Privileged Access Management

About Me:

- *I, Sudheer Karanam, have over 19+ years of experience in IT Industry with over 12+ years dedicated to InfoSec.*
- *My expertise includes many of Information security domains such as :*
    - *User Profile Management,*
    - *PII (Personally identifiable information),*
    - *Single Sign On,*
    - *OAuth, OpenId,*
    - *Device Identity,*
    - *Risk Adaptable Access controls,*
    - *Privileged Identity and Access Management,*
    - *Secrets Management,*
    - *PCI (Payment Card Industry) standards & processes.*
- *I hold Security industry's leading certifications such as Certified Ethical Hacker (CEH), CISSP.*

Agenda:

- ***Privileged Access Management***
  - *What ?*
  - *Why ?*
  - *Key Benefits*
- ***What does PAM do ?***
- ***PAM Solution types:***
- ***PAM Implementation:***
- ***Key players:***
- ***Q & A***

What is Privileged Access Management (PAM) ?

- ***What are privilege actions ?***
  - *Ex:*
    - *Modify System config.*
    - *CRUD operations on User/System accounts.*
    - *Administrative activities.*

- ***What are privileged accounts ?***
  - *Any accounts (human/system) with special/extra rights (which go beyond that of an ordinary user) to operate on applications, infrastructure, or data. Ex: Root users, Admin accounts, System accounts, Emergency accounts, Service accounts etc.*

- ***What is PAM ?***
  - *Is set of **strategies/policies to safeguard** administrative credentials and detect/alert/prevent malicious activities such as steal, destroy data or files on IT infrastructure.*

Why PAM ?

- Threats:
  - *Employees (Weakest link in cyber security).*
  - *External Malicious actors.*

- *According to the Verizon Data Breach Investigation 2021 report, **61% of surveyed data leaks involved privileged** credentials. And the cost of this type of attack is also higher.*

- *According to IBM in the Cost of Data Breach Report 2021, while the average cost of a data leak is usually $ 4.24 million, when the data leak involves privileged credentials, **this value can reach $ 4.37 million.***

Key Benefits of PAM:

- ***Malware protection**: Malwares usually require and operate in high privilege layers of system, with PAM its movement can be prevented or have its speed reduced.*
- ***Compliance** with important security (ex: SOX, HIPPA, NIST etc) & data protection (GDPR,CCPA etc) standards,*
- ***Improved Operational Efficiency**: With principle of least privilege only relevant permissions are assigned and maintained.*

What does PAM do?

- ***Centrally manage access*** *and can be a great help in preventing insecure password stores and shares.*
- *Implement* ***principle of Least Privilege*** *ensuring only minimal required access permissions to users.*
- *Can track* ***authorized/unauthorized*** *activities performed by* privileged users ***in real time****, monitor and ensure compliance to security standards.*
- *Maximize* ***security*** *with reduced* ***complexity*** *and increased* ***visibility****.*

- Note: Gartner suggests it is impossible to manage risk without specialized PAM tools.

PAM Solutions:

- ***Privileged Account and Session Management (PASM):***
  - Credentials are securely created and distributed through PAM, similar to a password manager. Thus every time a user needs access they get account with privileges, with all its activities recorded.
  - PASM offers:
    - Real-time monitoring.
    - Access control for shared accounts with MFA.
    - Remote session
    - Session Recording.
  - ***Secrets Management:***
    - Secrets: SSH keys, passwords, OAuth tokens, API keys.
    - Dynamic vs Static accounts.

- ***Privileged Elevation and Delegation management (PEDM) :***
  - Provide privileges based on role of the user.
  - JIT/ZSP Access.

Advanced PAM:

- *Zero standing privileges (ZSP).*
- *Use ephemeral identities and credentials (No password vaults or password rotation)*
- *Privileged Task Automation.*
- *Advance analytics.*

PAM implementation:

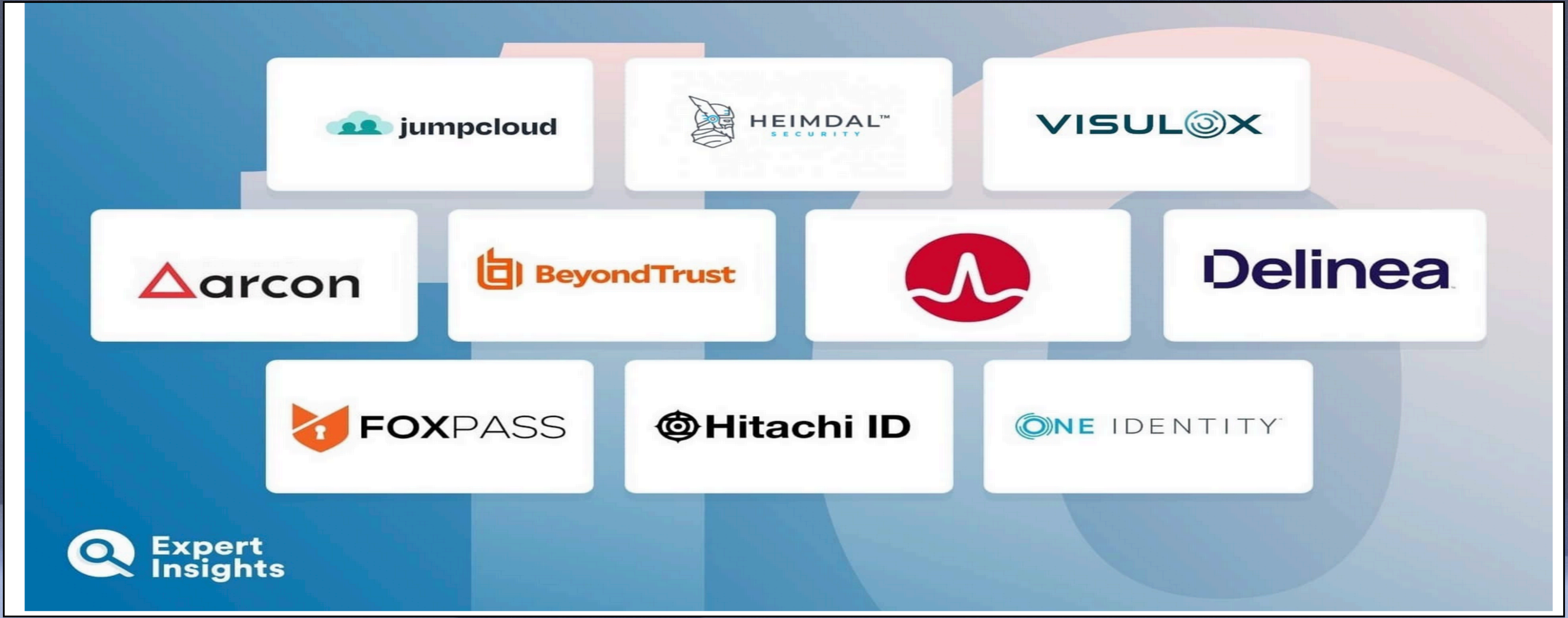
- The implementation of **PAM** involves three aspects: tools, people, and processes. Along with state of the art tool, it is very pertinent to invest in process optimization and training people.

- ***Pre-requisties:***
    - Inventory of accounts, credentials, systems.
    - Inventory of H2M Operations.
    - Inventory of M2M Operations.

- ***Implementation:***
    - *Enable real time session-activity tracking for detecting any deviants/abuses.*
    - *Enable session recordings.*
    - *Integrate with Secret management tool.*
    - *Extremely critical infrastructure : Ensure high-availability and recovery mechanisms.*

- ***Advanced :***
    - *Robotic process automation (RPA).*
    - *Cloud infrastructure entitlement management (CIEM).*

Key players:


jumpcloud
HEIMDAL™ SECURITY
VISULOX
arcon
BeyondTrust
Delinea
FOXPASS
Hitachi ID
ONE IDENTITY
Expert Insights

Q & A

Appendix:

- References:
  - https://www.ssh.com/academy/iam/pam
  - https://senhasegura.com/privileged-access-management-pam-a-complete-guide/
  - https://blogs.gartner.com/homan-farahmand/2022/07/06/rethink-identity-governance-and-administration/
  - https://expertinsights.com/insights/the-top-10-privileged-access-management-pam-solutions/
  - Guidance for Privileged Access Management — Gartner