STRIDE

Adversarial Behaviours

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Adversarial Behaviours

- **Framework** for thinking, discussing and classify threats developed by Kohnfelder and Garg at Microsoft.
- Designed with the aim of getting software developers to **consider common threats**.
- STRIDE is designed to largely be a resource to support software development. The approach can be considered an **elicitation** technique of the perceived threats, rather than specific discovery.
- STRIDE is **not a modelling technique** and would not be used to understand the **anatomy of a cyber attack**.

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Adversarial Behaviours

- Spoofing
- Tampering
- Repudiation
- Information Disclosure
- Denial of Service
- Elevation of Privileges

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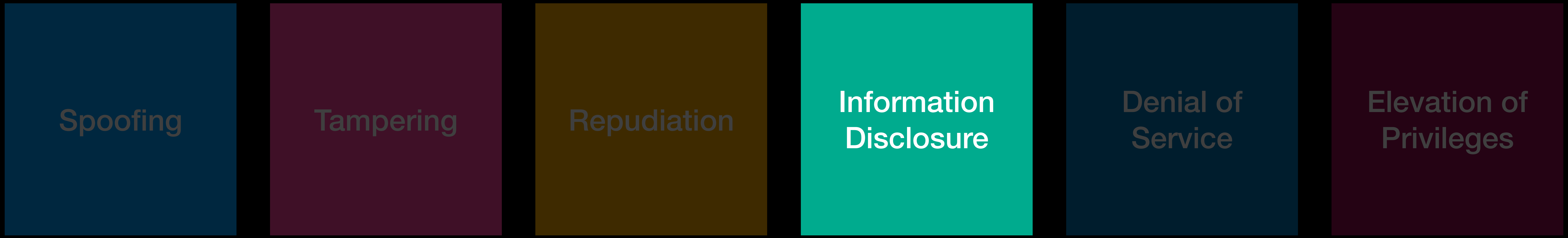

Spoofing

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Spoofing

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- Spoofing refers to the concept of masquerading as something itself.
- An attacker could pretend to a process, file, machine or another person.
- Consider a website that masquerades or pretends to be an official website.
- Consider a social engineering phone call pretending to be an official or organisation.

Spoofing

Tampering

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- Tampering can be consider an attack that modifies some data.
- Modification could occur on the cyber system, both on disk or memory, as well as over the network.

Tampering

STRIDE

- Attacker could add additional nefarious packets to the network rather than alter existing ones.
- Recall, many designs may start from just getting things working rather than what is optimal in terms of security.

Tampering

Repudiation

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- Repudiation refers to rejection of responsibility of actions.
- An interesting aspect of STRIDE as it more an enterprise issue, than a technology issue.

Repudiation

Repudiation

STRIDE

- Non-repudiation is crucial to ensure another entity or individual cannot reject responsibility.
- Transactions and actions require confidence between both parties.

Repudiation

Information Disclosure

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- Information disclosure means that information was consumed or revealed to unauthorised parties.
- Essentially meaning that an individual or entity was not meant or should not have access to the information.

Information Disclosure

Information Disclosure

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- Can consider this from very small to very large information disclosure.
- An error message revealing structure of system or even recovery implementations.

Information Disclosure

Denial of Service

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- Denial of service attacks effectively consume resources to the detriment to others.
- Such attacks can be considered active or persistent attacks.
- Denial of service attacks can also be considered in terms of amplification.

Denial of Service

Elevation of Privileges

STRIDE

- Elevation of privileges is an entity executing at level that is not permitted.
- Consider an entry-level individual executing processes on a cyber system restricted to administrators.
- An external entity with no privileges executing processes remotely on cyber systems.

Elevation of Privileges

Elevation of Privileges

STRIDE

- Horizontal escalation refers to accessing function available to other users on the same tier.
- Name misleading, but essentially stealing username/password access similar functions.
- Vertical escalation refers to accessing functions that are the preserve of entity with different privileges.

Elevation of Privileges

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Adversarial Behaviours

- STRIDE is **not a modelling technique** and would not be used to formulate the **anatomy of a cyber attack**.
- STRIDE is designed to largely be a resource to support software development. The approach can be considered an **elicitation** technique of the perceived threats, rather than specific discovery.
- Using STRIDE to model or formulate understanding of campaigns or complex attacks may actually result in ignoring aspects of the attack.

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