



Removing Barriers to Cyber Security

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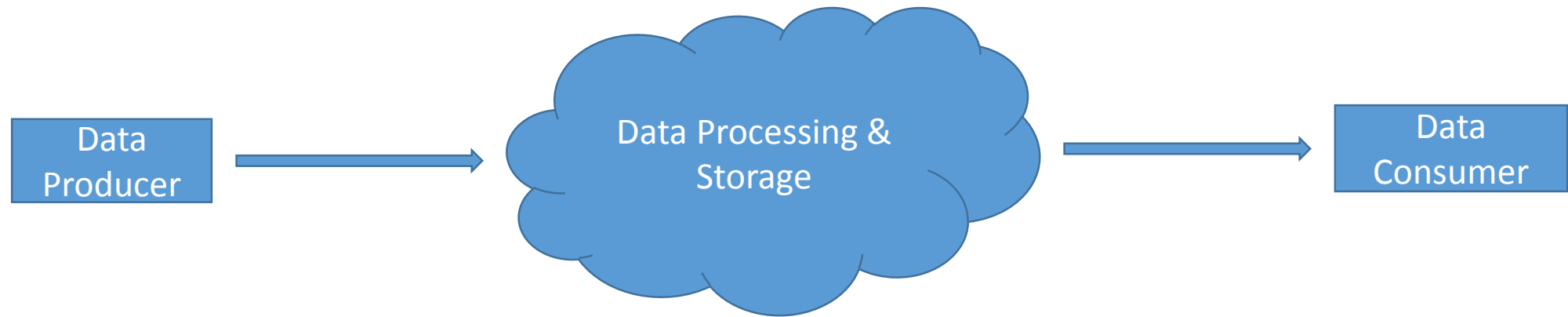
One click away

- Data is the core asset of almost any business
- Data generation per day: 2.5 quintillion bytes!
 - IoT will increase this pace
- Access everywhere: small world after all
- This also means your data is closer to the *Bad Guys*

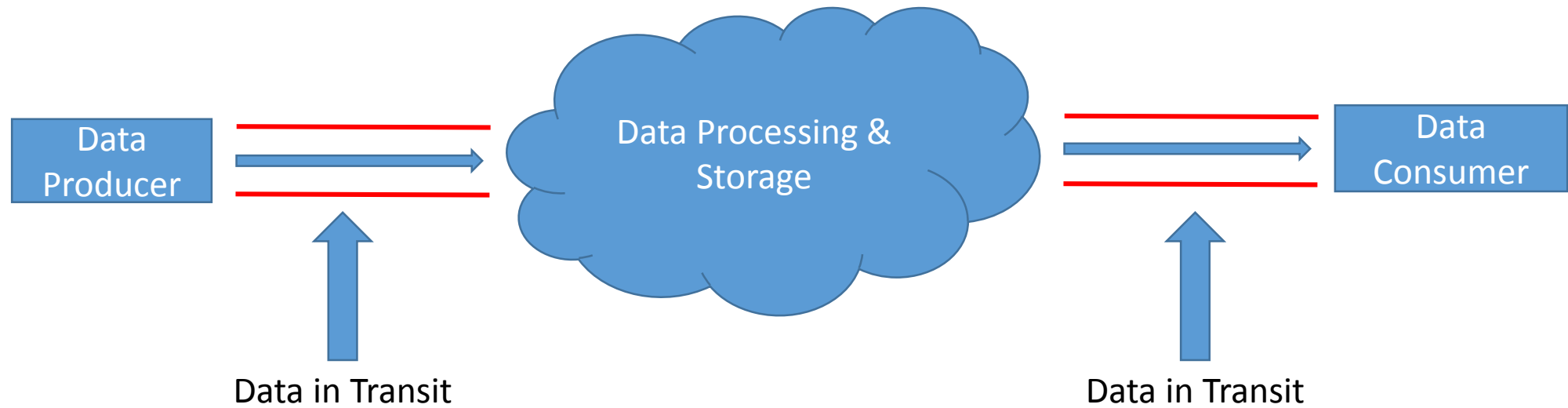
Not a matter of IF but rather of WHEN

- Data breaches happen
 - Singapore and US Healthcare hacked in the last month
- Today software systems are very complex
 - An Android phone has 10x LoC than a Space Shuttle!
- Writing robust bug-free code is a form of art
- Pressing business demands often mean release of buggy artefacts

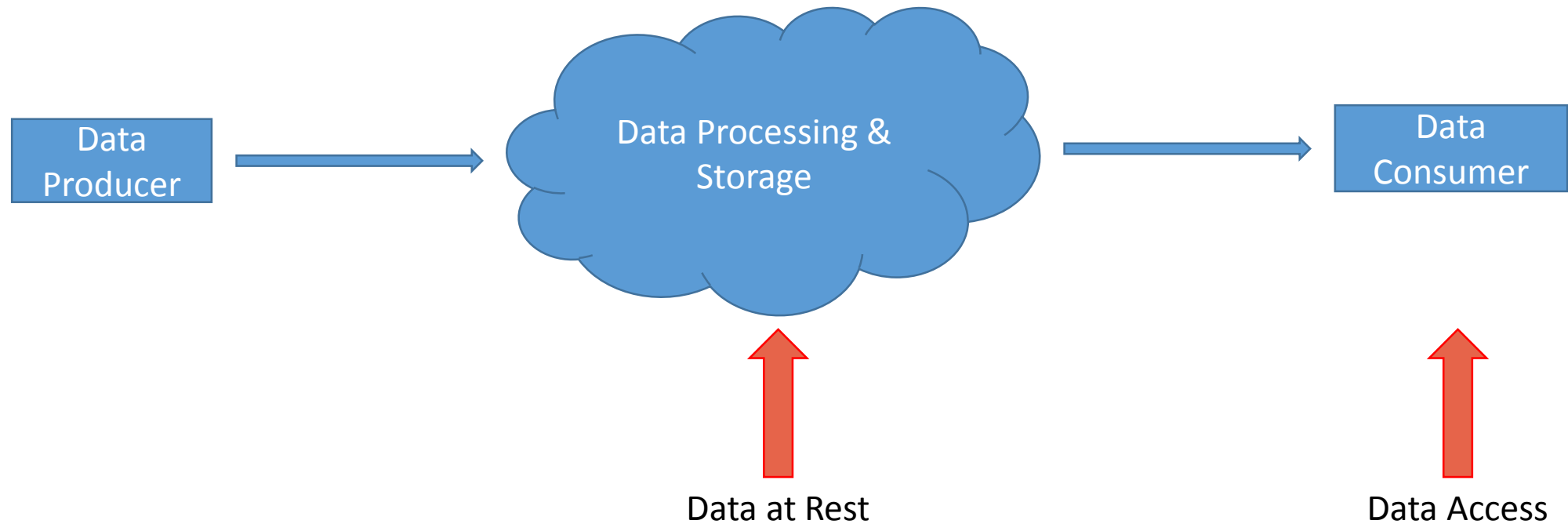
Data Lifecycle



Effective Data Protection



Data Protection to be Improved



Beware Outsourcing Challenges*

- Losing control over data access
- Relying on a third-party
- System vulnerabilities
- Malicious insiders
- APTs
- Lack of strong isolation
- ...

*2018 Cloud Security Alliance's Treacherous 12

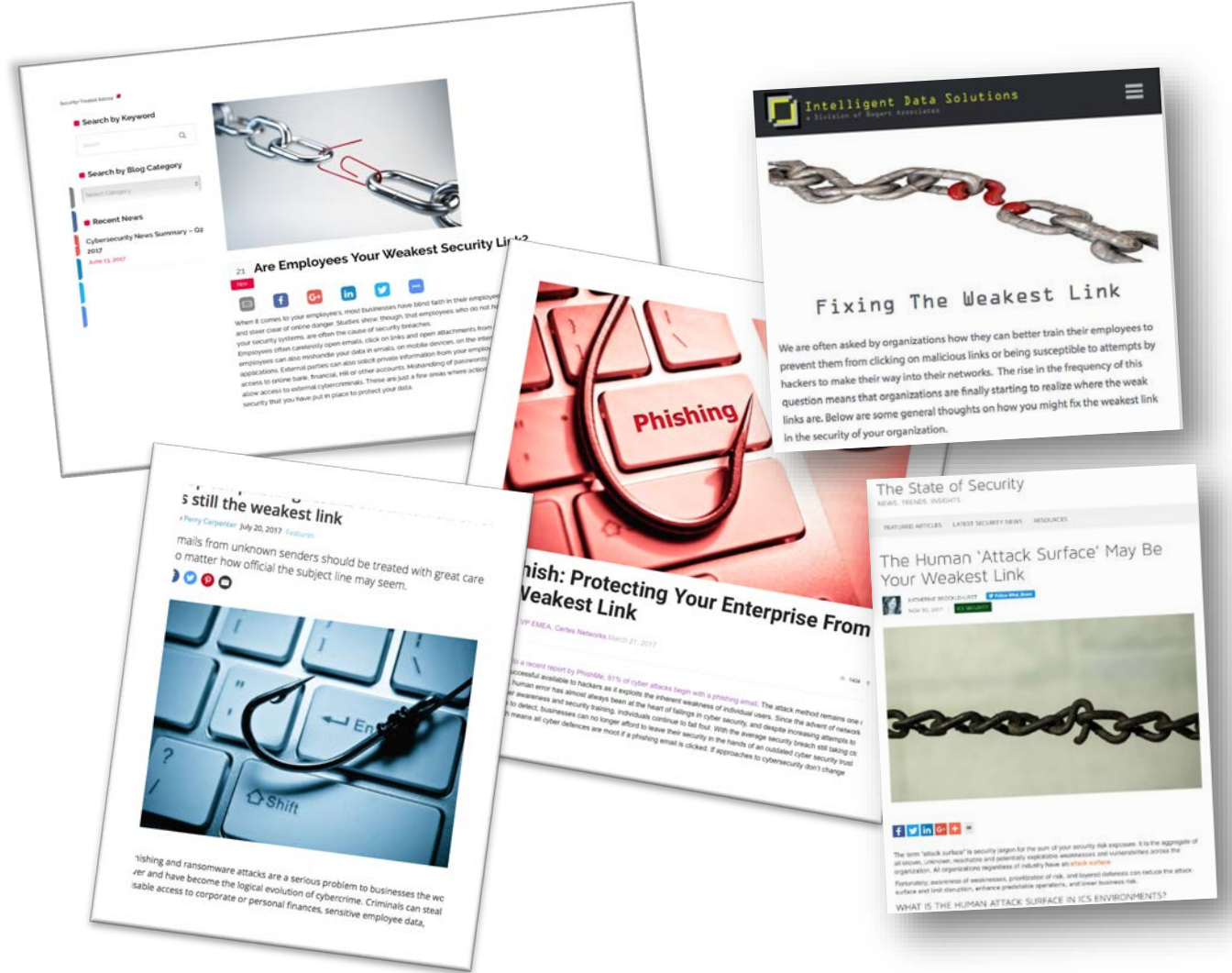
Protecting the *sitting data*

- Standard encryption helps at rest
 - But where are the keys stored?
- Theoretical approaches offer the holy grail solution but are not practical
- Above par schemes that are also practical do exist
 - Searchable encryption solutions
 - For more details see <https://stratus.org.nz/>



The weakest link – The Human

Social engineered attacks are the most successful

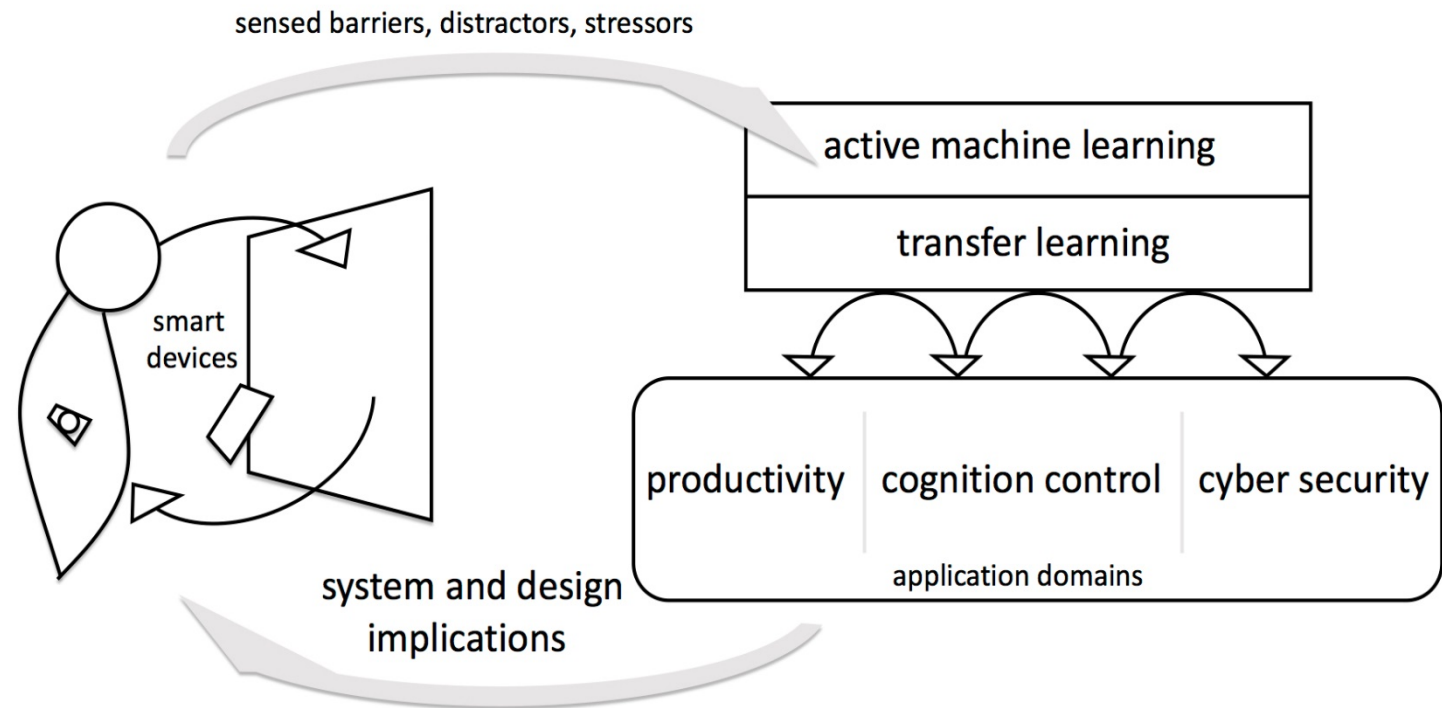


The Human in the Loop

- Up to 91% of cyber attacks begins with a phishing email
 - Up to 30% of phishing emails are opened
- Successful phishing attacks play on basic human motivations and emotions
 - Fear, curiosity, flattery, urgency, familiarity
- Individual (“trait-level”) differences in vulnerability
 - Personality, Working Memory Capacity
- Situational (“state-level”) differences in vulnerability
 - Multitasking, cognitive load, fatigue, distraction

Boosting Effectiveness – A new CSF Research

- *Cyber security is not just a technical issue – but technology can play an important role*
- Sensing users' conditions
- Eliminating distractors
- Boost cognitive control



Fin!

Cyber Security Foundry



<https://csf.auckland.ac.nz/>

Acknowledgments

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