Robust Cache Covert Channels in the Cloud

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April 4th, 2017

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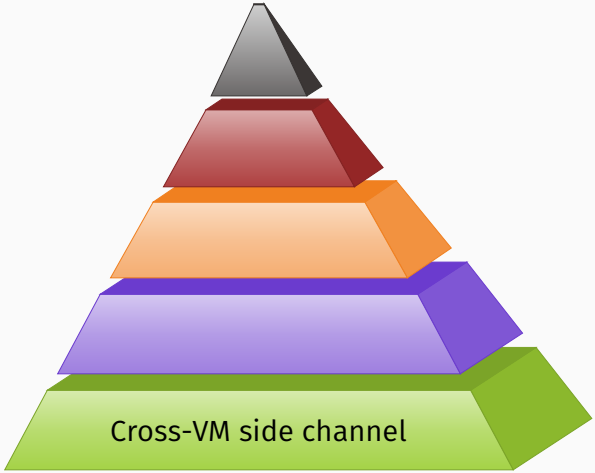
  - is free of transmission errors
  - is robust against system noise

Challenges



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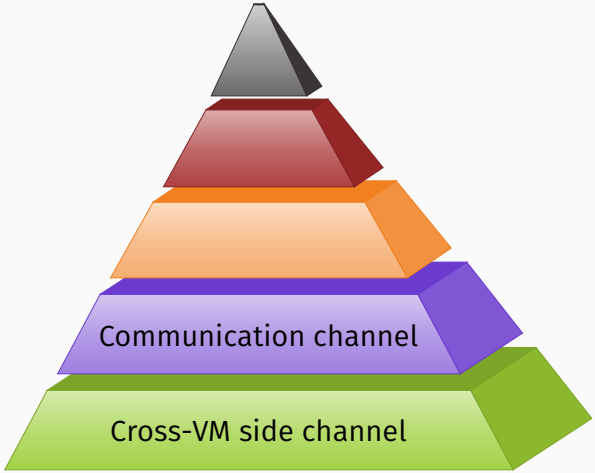

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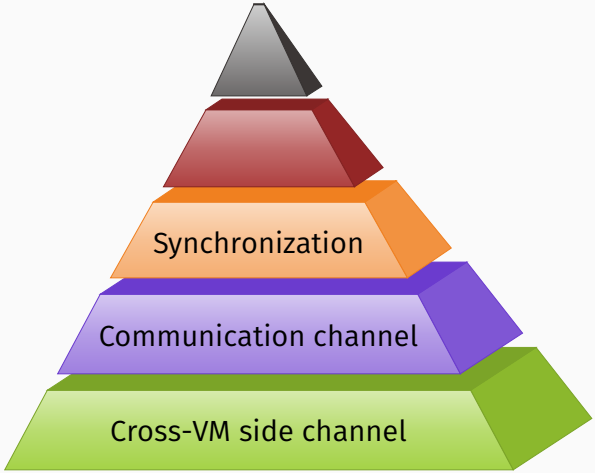
Synchronization
Communication channel
Cross-VM side channel

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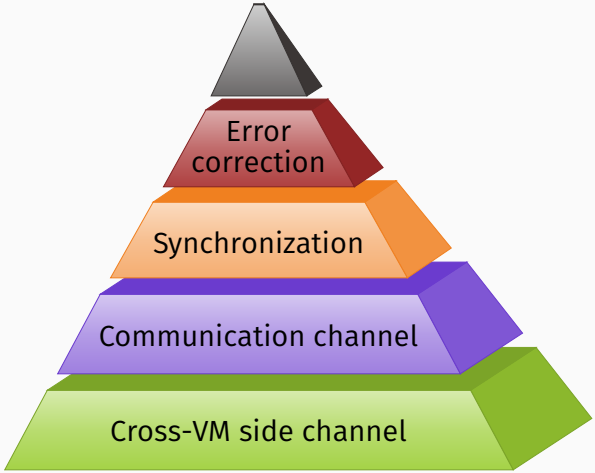
Error correction
Synchronization
Communication channel
Cross-VM side channel

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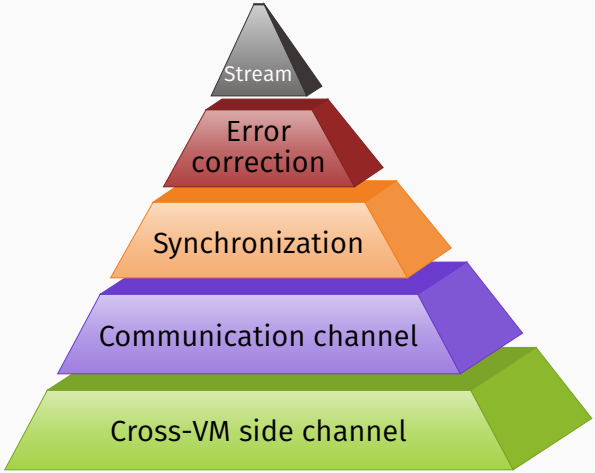
Stream
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Synchronization
Communication channel
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- Prime+Probe is a last-level cache side channel
- Exploits the timing differences of cached and uncached data
- The last-level cache is shared among all VMs
- No further requirements

Result

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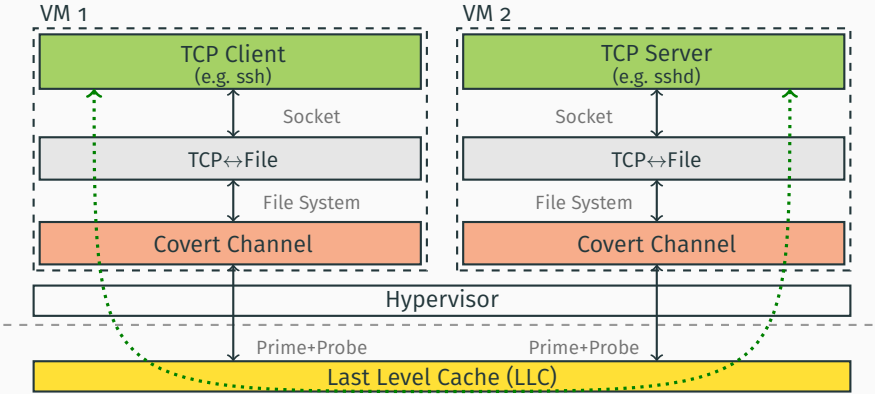
Building an SSH connection

TCP-over-Cache (RFC?)



Demo

https://www.youtube.com/watch?v=d_TmocWyEDY