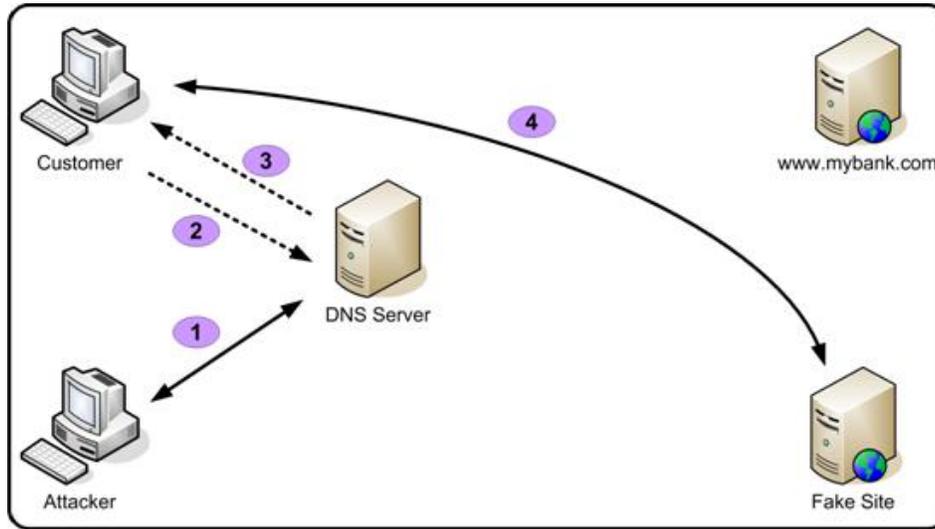
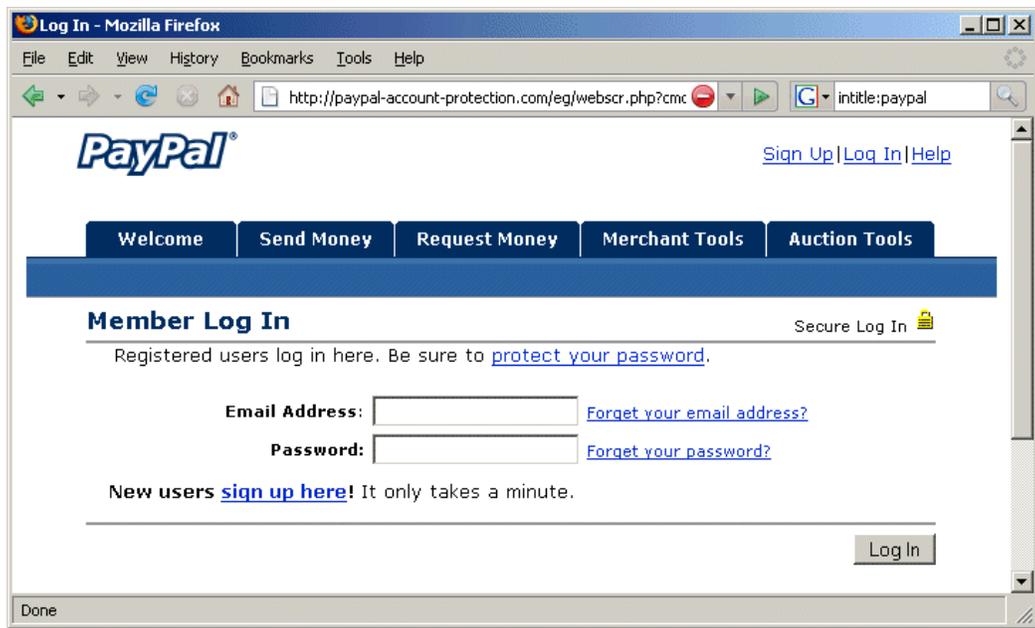


Pharming



Phishing



Phishing

Please verify a recent charge attempt

Hello, Sean K Barker Account Ending: 31019

Fraud Protection

For your security, we regularly monitor accounts for possible fraudulent activity. Below are the details of an attempted charge:

Attempt Date:	11/06/16
Merchant:	SHAW S
Amount:	193.95 USD
Status:	Not Approved

Do you recognize this attempt?

Yes No

If you or an authorized party has already addressed this concern, please disregard this message.

Thank you for helping us to protect the security of your account.

American Express Account Protection Services

Contact Us | Privacy Statement | Add us to your address book

Your Card Member information is included above to help you recognize this as a customer service e-mail from American Express. To learn more about e-mail security or report a suspicious e-mail, please visit us at americanexpress.com/phishing. We kindly ask you not to reply to this e-mail but instead contact us via [customer service](#).

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AGNEUAL0004003

Verify a recent charge attempt

Dear Membership Account : 37***

Fraud Protection

For your security, we regularly monitor accounts for possible fraudulent activity. Below are the details of an attempted charge:

Payment Due Date:	October 20, 2018
Merchant information:	walmart.com
Amount:	\$890.00
Status:	Not Approved

For your security, new charges on the accounts listed above may be declined. If applicable, you should advise any Additional Card Member(s) on your account that their new charges may also be declined. To safeguard your account, please access your account [Visit Here](#).

Thank you for your Card Membership.

American Express Customer Care

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Follow Us on Twitter
Subscribe to our channel
Share with Foursquare friends

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Your Card Member information is included above to help you recognize this as a customer service e-mail from American Express. To learn more about e-mail security or report a suspicious e-mail, please visit us at americanexpress.com/phishing. We kindly ask you not to reply to this e-mail but instead contact us via [customer service](#).

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AGNEUBBK0002003

Bowdoin

Sean Barker

3

Phishing

From: American Express Online 10659

Subject: RE: Fraud Detection: Please view your recent activity and we'll help you take corrective action. ID0225840

Date: October 20, 2018 at 4:50:35 PM EDT

To: undisclosed-recipients;;

Verify a recent charge attempt

Dear Membership Account : 37***

Fraud Protection

For your security, we regularly monitor accounts for possible fraudulent activity. Below are the details of an attempted charge:

Payment Due Date:	October 20, 2018
Merchant information:	walmart.com
Amount:	\$890.00
Status:	Not Approved

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Thank you for your Card Membership.

American Express Customer Care

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Your Card Member information is included above to help you recognize this as a customer service e-mail from American Express. To learn more about e-mail security or report a suspicious e-mail, please visit us at americanexpress.com/phishing. We kindly ask you not to reply to this e-mail but instead contact us via [customer service](#).

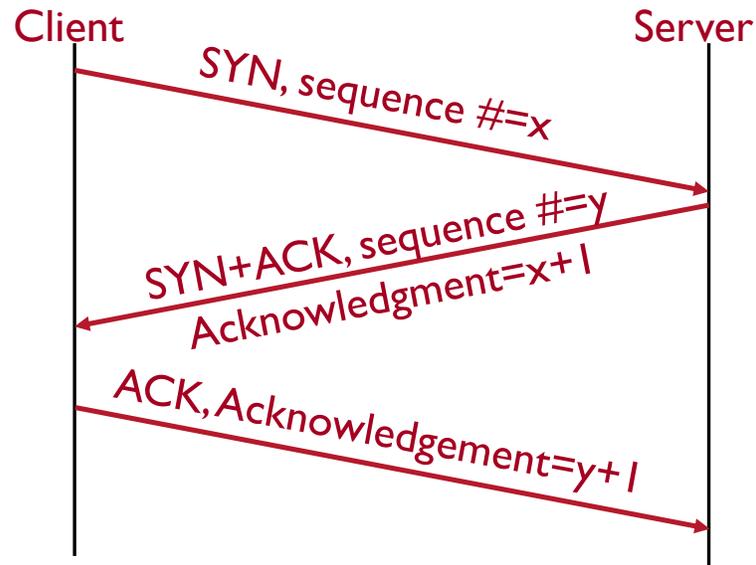
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AGNEUBBK0002003

Bowdoin

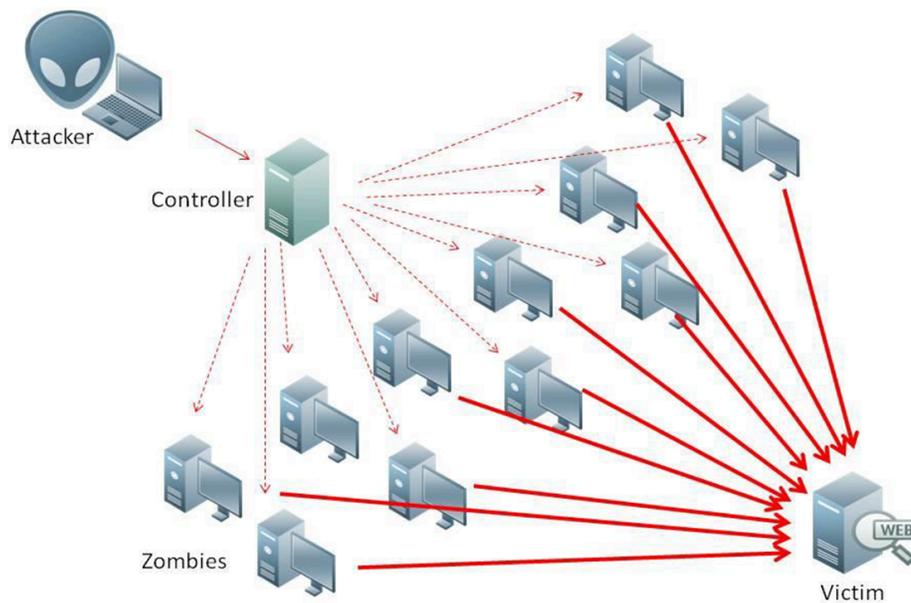
Sean Barker

4

TCP Three-Way Handshake



Distributed Denial of Service (DDoS)

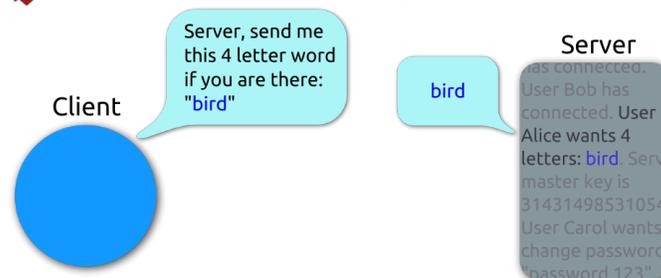


Botnet Resource Consumption

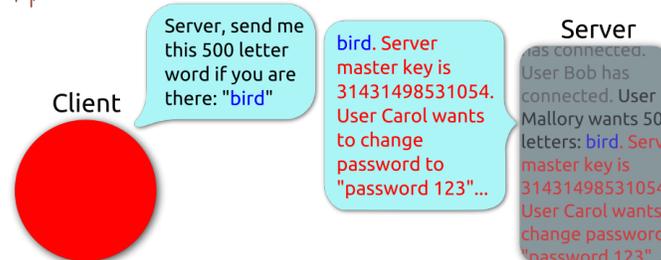
Attack	Resource Threshold	Requests/Bot	Bots needed to exhaust
Static HTTP GET	60,000/sec	93 requests/sec at 250 bytes/request	645
Dynamic HTTP GET	3,000/sec	93 requests/sec at 250 bytes/request	40
SSL Handshake	600/sec	10 requests/sec	60

Heartbleed (2014)

Heartbeat – Normal usage



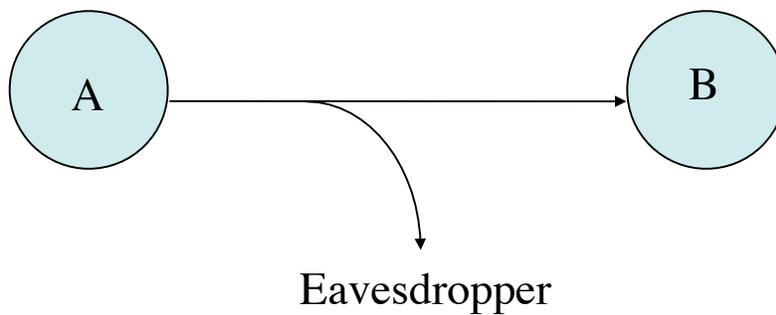
Heartbeat – Malicious usage



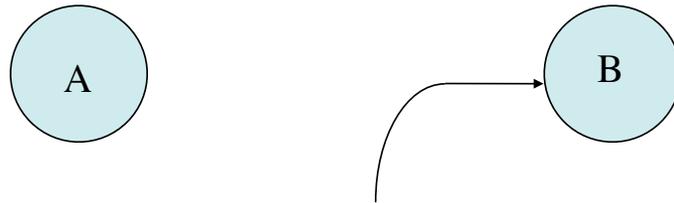
Secure Communication



Eavesdropping

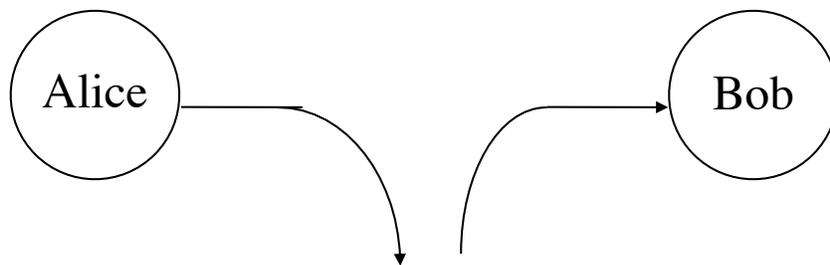


Fabrication



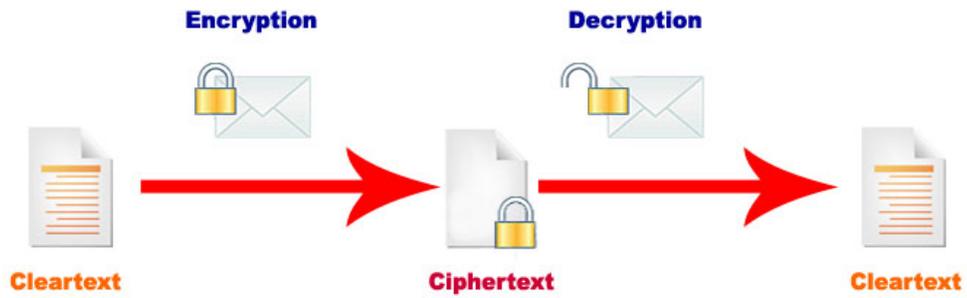
Masquerader: from A

Tampering

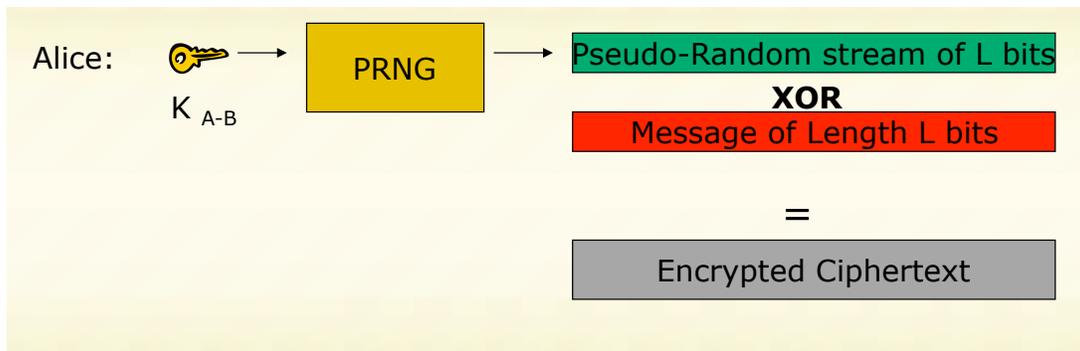


Perpetrator

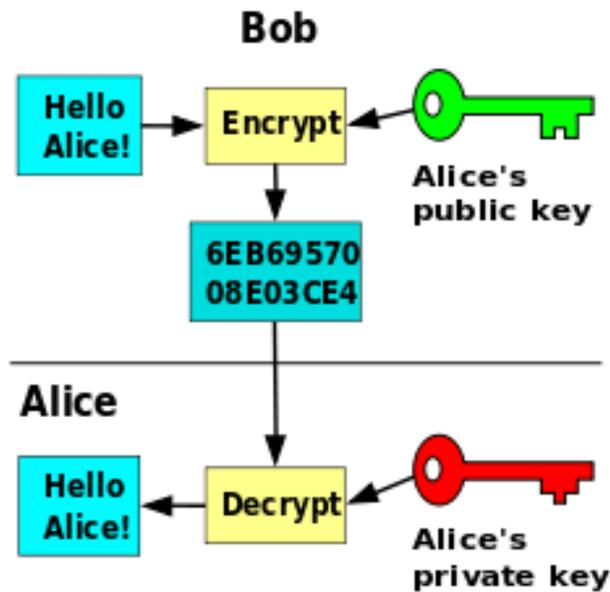
Encryption



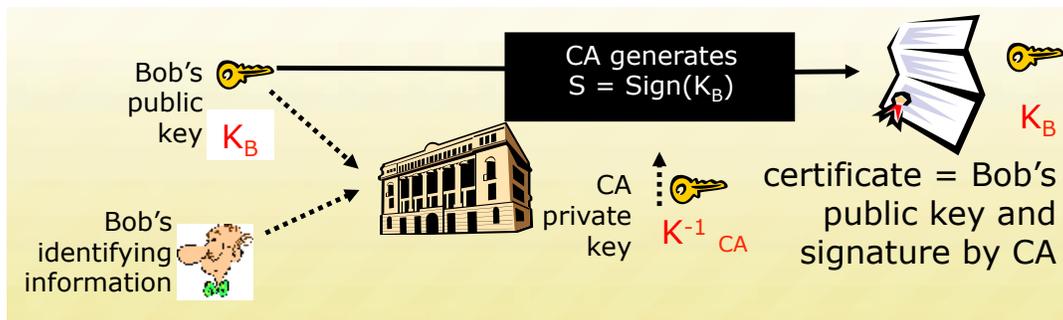
Example: Stream Ciphers



Public Key Cryptography



Certification Authorities



Certificates

