Mobile DNS Validation

Strengthening Registry Services Security

March 24 2014

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Lesson Learnt

2013

MYNIC experiences 2 security incident of unauthorised DNS redirections.

July 2013

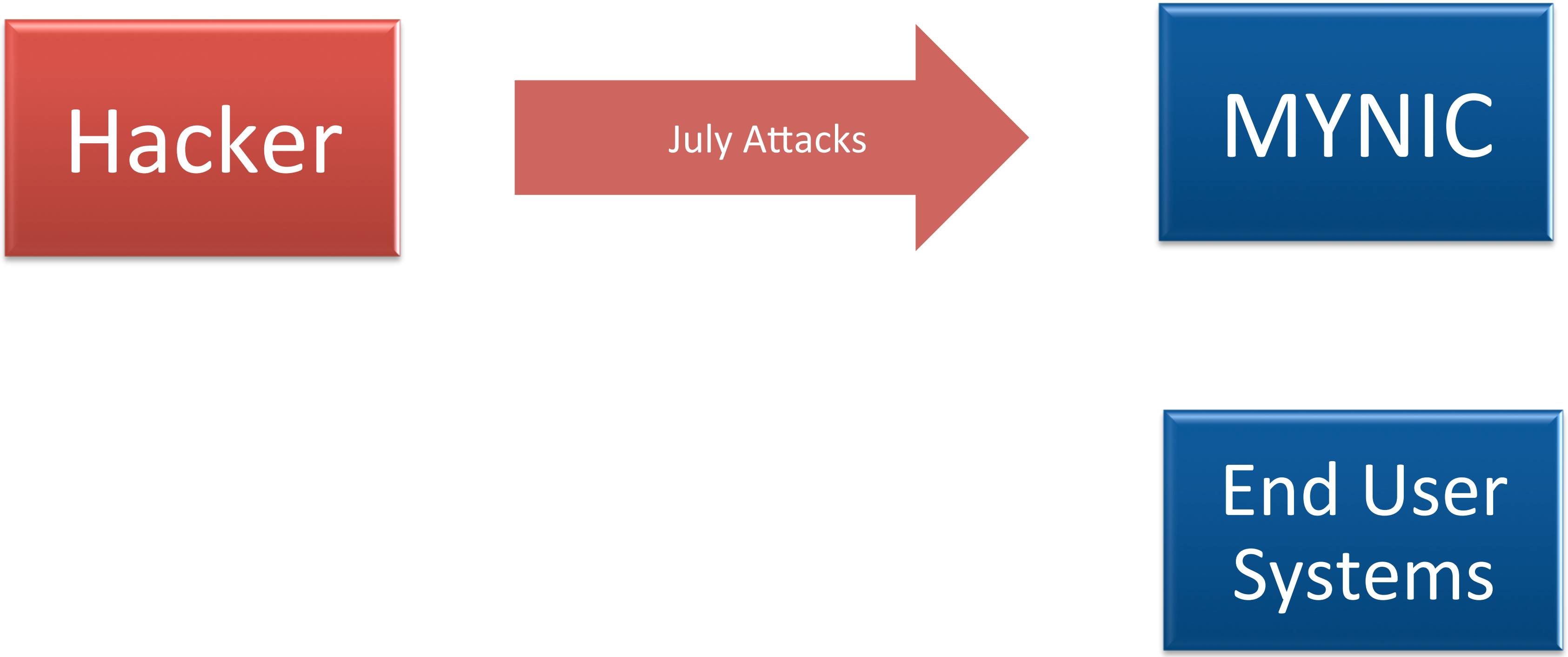
Hackers target MYNIC system and modify DNS information.

October 2013

Hackers target End-User account and modify DNS information.

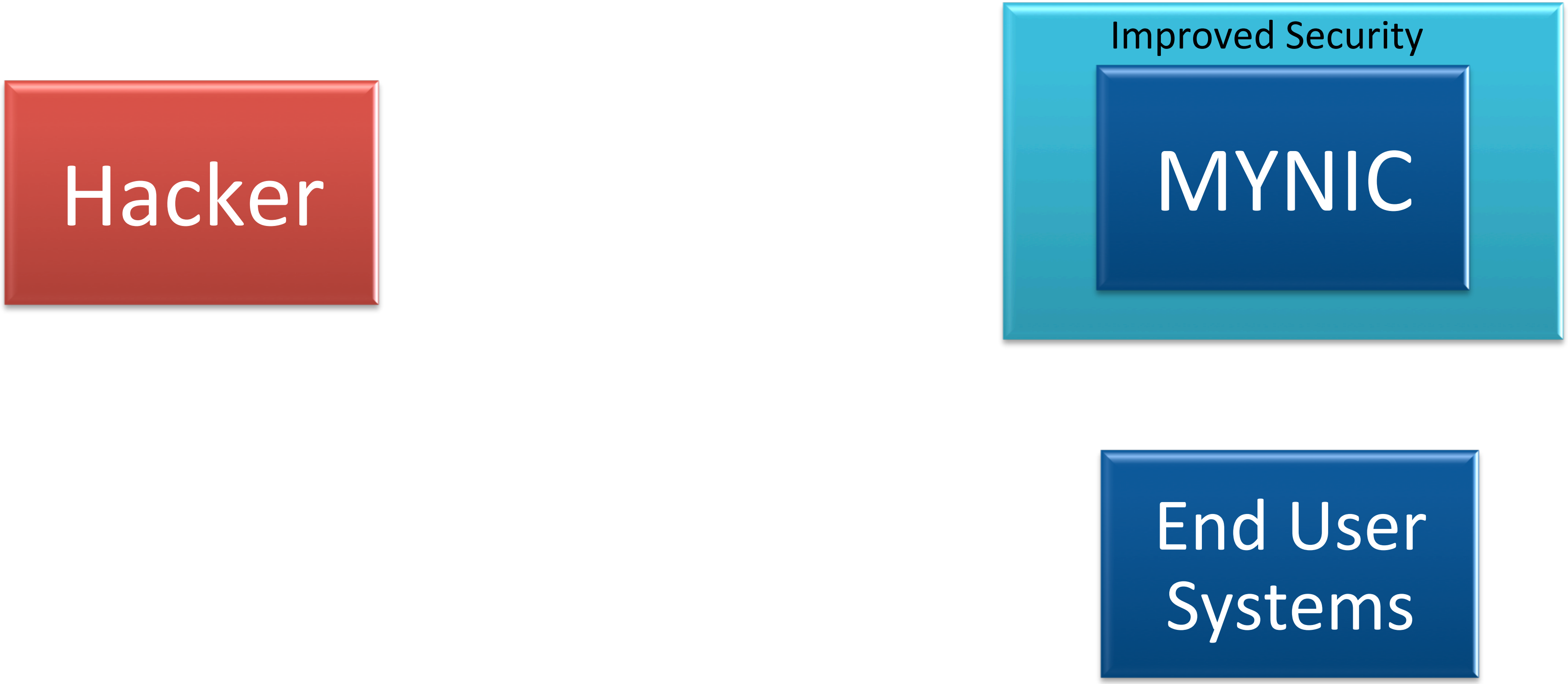
Lesson Learnt

October Tragedy – What actually Happened



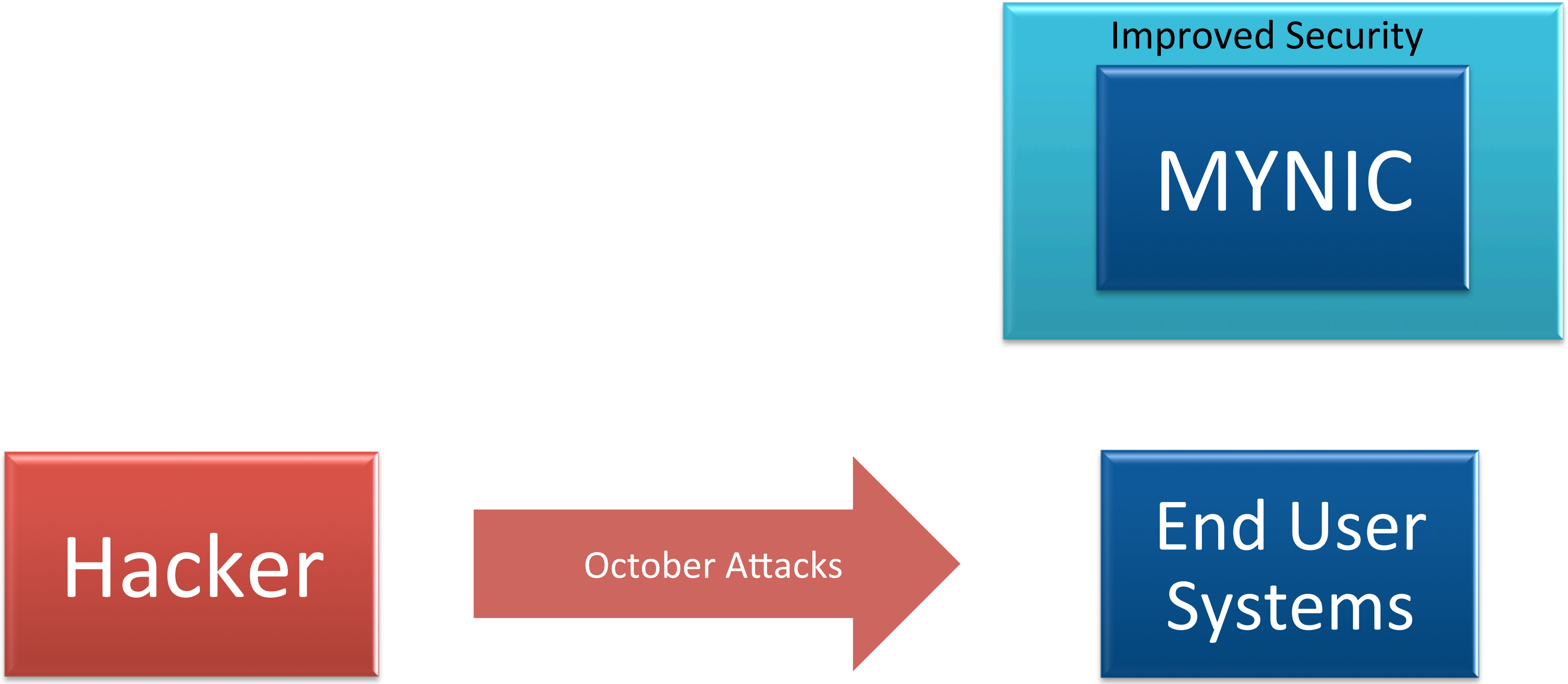
Lesson Learnt

October Tragedy – What actually Happened



Lesson Learnt

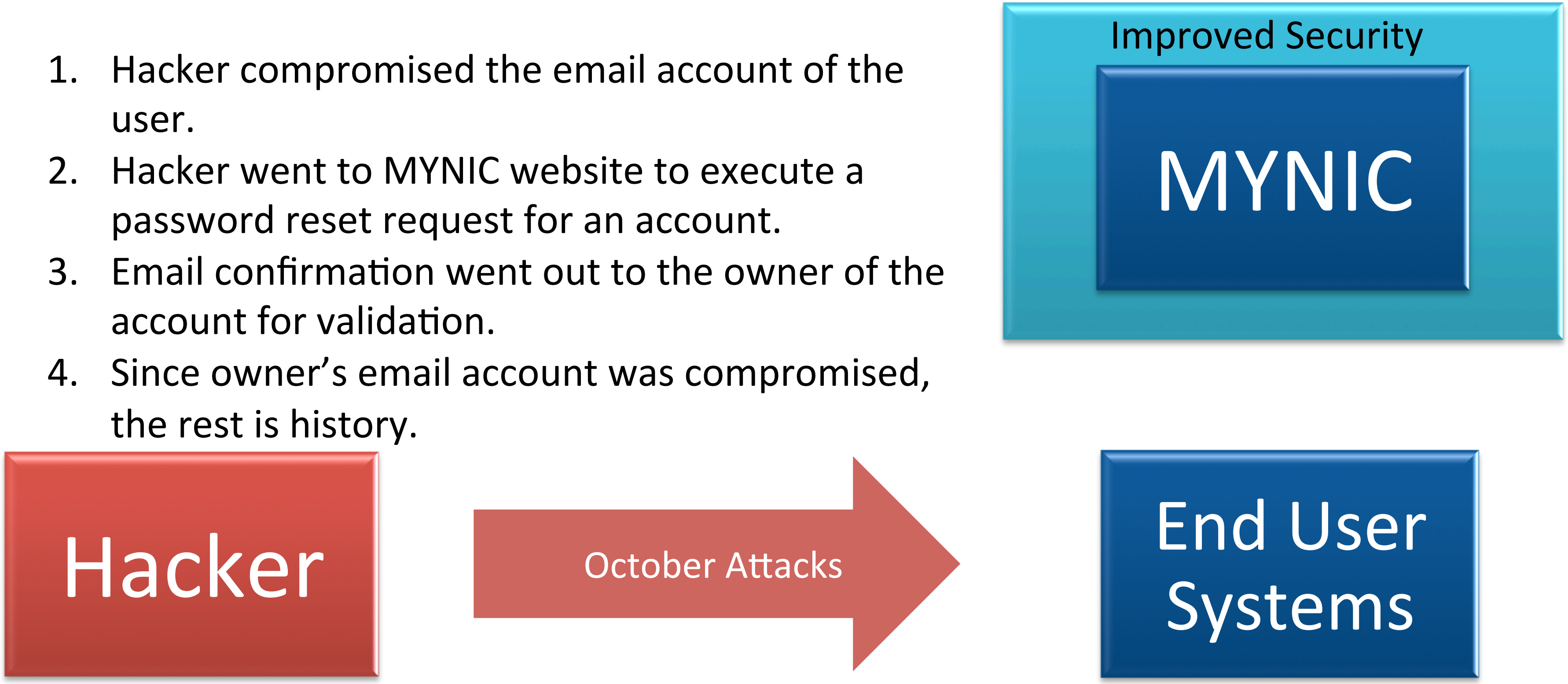
October Tragedy – What actually Happened



Lesson Learnt

October Tragedy – What actually Happened

1. Hacker compromised the email account of the user.
2. Hacker went to MYNIC website to execute a password reset request for an account.
3. Email confirmation went out to the owner of the account for validation.
4. Since owner's email account was compromised, the rest is history.



Lesson Learnt

What can we learn from the two incidents

1. End goal is always to modify DNS information. As MYNIC improves the security level of it's own system, hackers find the weakest link by understanding the whole process.

2. Looking at just MYNIC own security is inadequate since expectations of end users and perceptions of the public is different

Lesson Learnt

What can we learn from the two incidents

3. There is no absolute security. We can make it harder to a point the investment is not worth the return.

4. Protection up to end user for the services given is becoming a necessity in order to mitigate as much as possible the risk of compromised in external systems

Due to that MYNIC decided to introduce multi-factor authentication system to further mitigate the risk of unauthorized DNS modification.

What Multi Factor Authentication?

1st Factor = What you **KNOW**
(e.g. username & password)

2nd Factor = What you **HAVE**
(e.g. token, phone, smartcard, certificates)

3rd Factor = What is **UNIQUE**
(e.g. fingerprint, DNA, retina)

If one factor is compromised, other factors are still in placed to protect the user. MYNIC implements 2 Factor authentication (2FA).

2FA Types & Points of Protection

2FA Types

Deployment of myTAC 2-Factor (2FA) authentication modules.

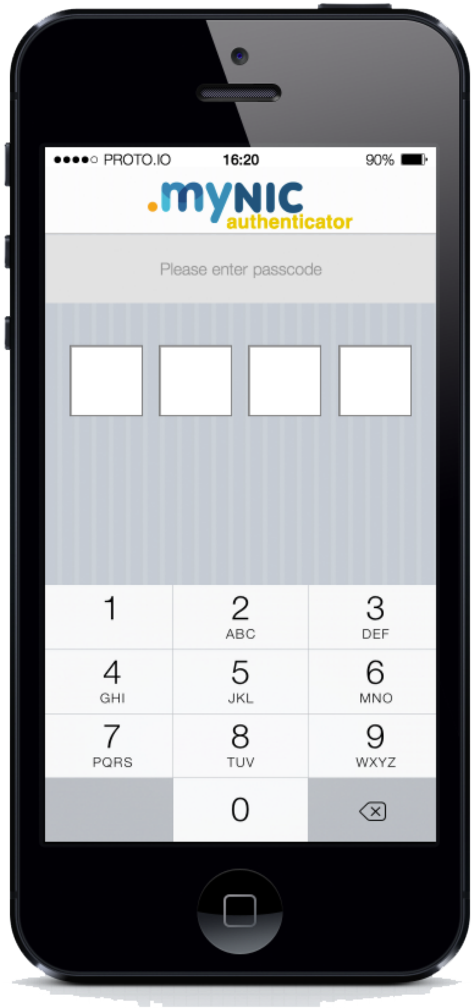
SMS – **Computer authentication** with verification using **SMS**

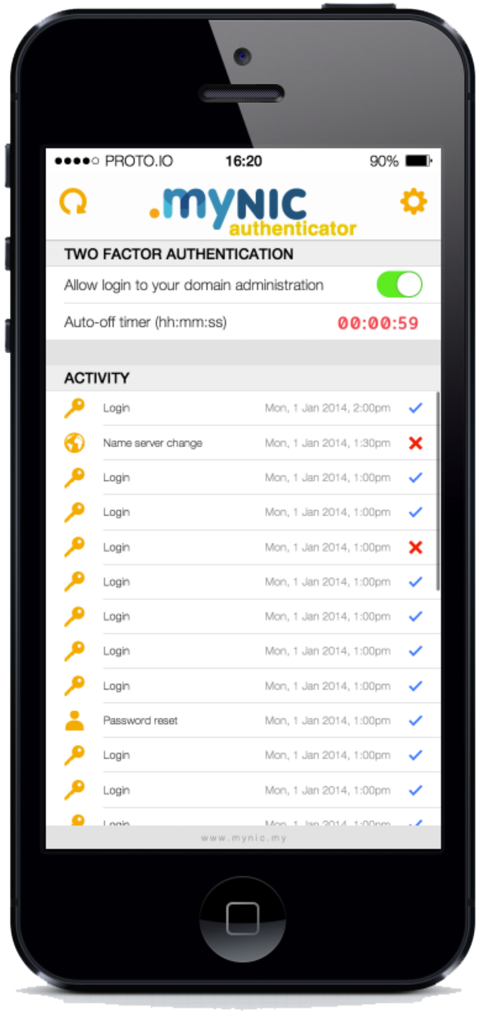
Smart – **Smartphone** application-based (IOS & Android)

Points of Protection

- Authentication Process
- Password Recovery
- Request on sensitive transactions i.e. changing domain’s information

Smartphone Authentication Request





TWO FACTOR AUTHENTICATION

Allow login to your domain administration

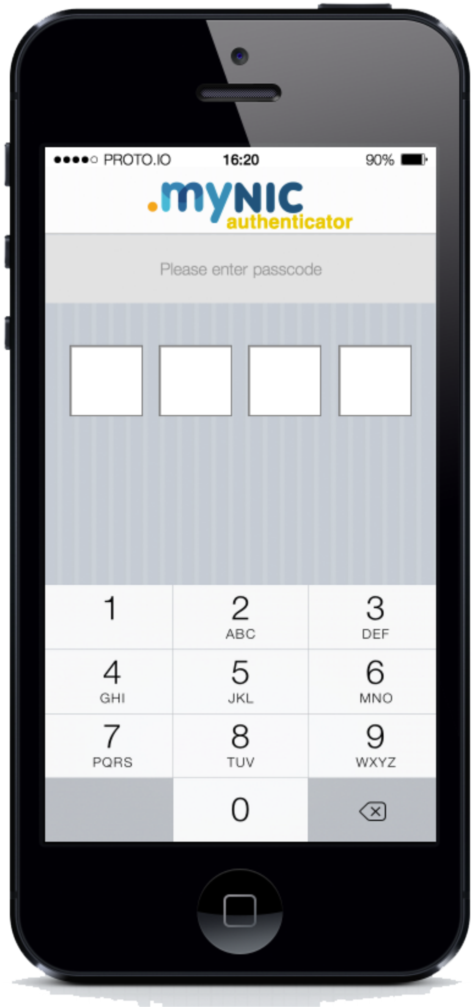
Auto-off timer (hh:mm:ss) 00:00:59

ACTIVITY

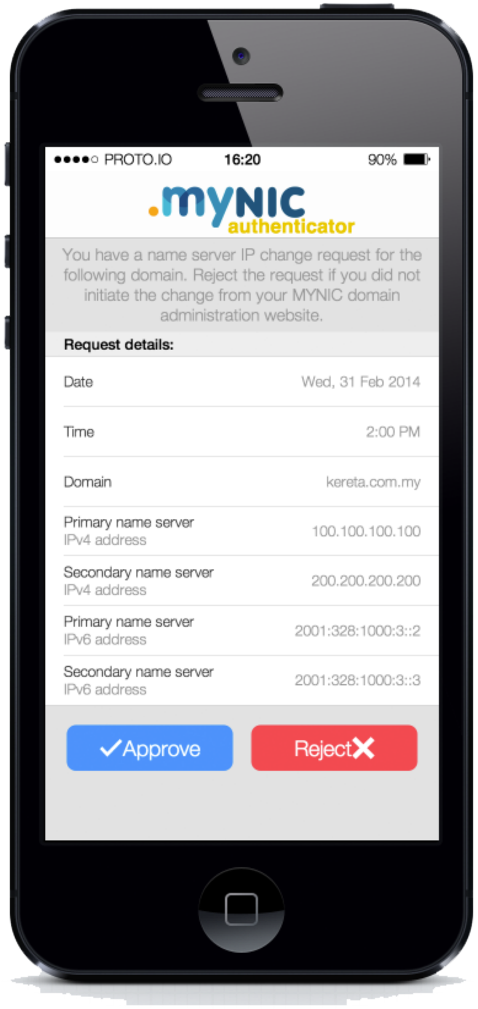
Login	Mon, 1 Jan 2014, 2:00pm	✓
Name server change	Mon, 1 Jan 2014, 1:30pm	✗
Login	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✗
Login	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✓
Password reset	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✓
Login	Mon, 1 Jan 2014, 1:00pm	✓

Smartphone Transaction Request

Powered by e-Lock TheGRID Beacon technology



Please enter passcode



You have a name server IP change request for the following domain. Reject the request if you did not initiate the change from your MYNIC domain administration website.

Request details:

Date	Wed, 31 Feb 2014
Time	2:00 PM
Domain	kereta.com.my
Primary name server IPv4 address	100.100.100.100
Secondary name server IPv4 address	200.200.200.200
Primary name server IPv6 address	2001:328:1000:3::2
Secondary name server IPv6 address	2001:328:1000:3::3

Other Matters that are as important

- Pre-registration of mobile phone numbers
- Delegation capabilities for end users who outsource domain management
- Awareness exercise to users and additional support points for help desks
- Integration of the solution into the system

Thank you

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