Adoption DNSSEC To Secure e-Government Services

DNSSEC and Security
Virtual ICANN68 Workshop

22nd June 2020

.myNIC

An agency under

Ministry of Communications and
Multimedia Malaysia

Agenda

1. Who are we?
2. History of DNSSEC Deployment
3. Journey To Adopt Secure e-Government Services Via DNSSEC

.myNIC

Who Are We?

At a Glance

An agency under Ministry of Communication and Multimedia Malaysia **(KKMM)**

MYNIC is a .MY domain name registry and registrar, which is the country code top-level domain (ccTLD)

MYNIC is a part of Malaysia's **Critical National Information Infrastructure (CNII).**

The .MY domain name is one of the **key enablers** of the digital economy ecosystem.

MYNIC's focus is to **develop and promote the usage** of .MY among Malaysians.

MYNIC strives to **empower businesses and industries** to become part of the **digital economy** through the development of the domain name industry as part of the ICT infrastructure in Malaysia

Core Services

Open Category Domain Name

.my
Individuals/ entities

.com.my
Commercial Organisations

.net.my
Network-related Organisations

.org.my
Other categories of Organisation

.name.my
Individuals

Closed Category Domain Name

.gov.my
Government Organisations

.edu.my
Education Organisations

.mil.my
Military Organisations

Internationalized Domain Name (IDN)

- Jawi characters
- Chinese characters
- Tamil characters

Registry Services

- Database
- WHOIS
- DNS Resolution

Value Added Services

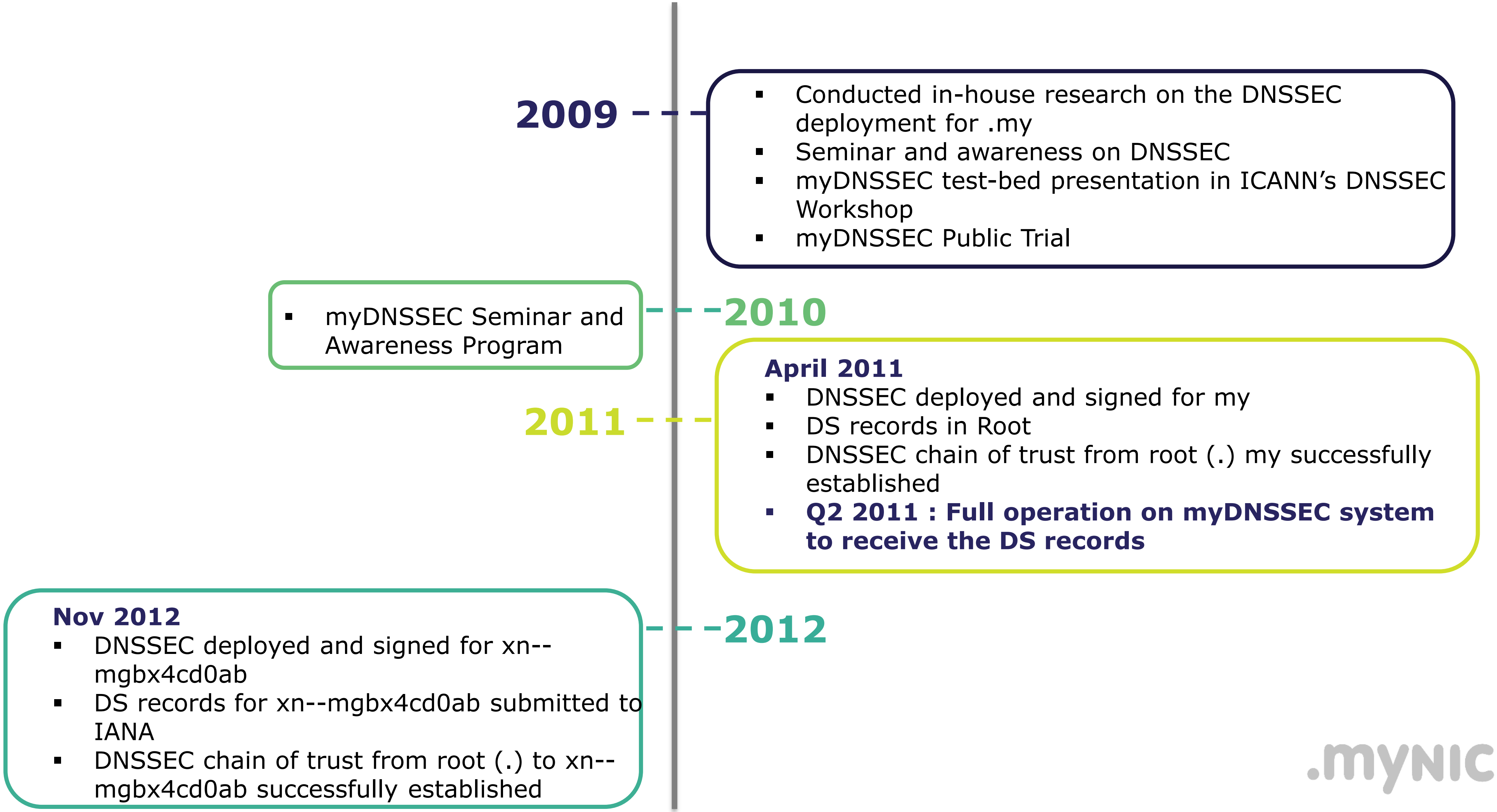
- .my Domain Name Dispute Resolution Services (MYDRP)
- Sensitive Domain Names Dispute Resolution Policy (SNDRP)

Registrar Services

- Customer Online Registration Services
- Customer Care & Resellers Support Services

History of DNSSEC Deployment

History of DNSSEC Deployment



2009

- Conducted in-house research on the DNSSEC deployment for .my
- Seminar and awareness on DNSSEC
- myDNSSEC test-bed presentation in ICANN’s DNSSEC Workshop
- myDNSSEC Public Trial

2010

- myDNSSEC Seminar and Awareness Program

2011

April 2011

- DNSSEC deployed and signed for my
- DS records in Root
- DNSSEC chain of trust from root (.) my successfully established
- **Q2 2011 : Full operation on myDNSSEC system to receive the DS records**

2012

Nov 2012

- DNSSEC deployed and signed for xn--mgbx4cd0ab
- DS records for xn--mgbx4cd0ab submitted to IANA
- DNSSEC chain of trust from root (.) to xn--mgbx4cd0ab successfully established

Journey towards Secure e-Government Services via DNSSEC

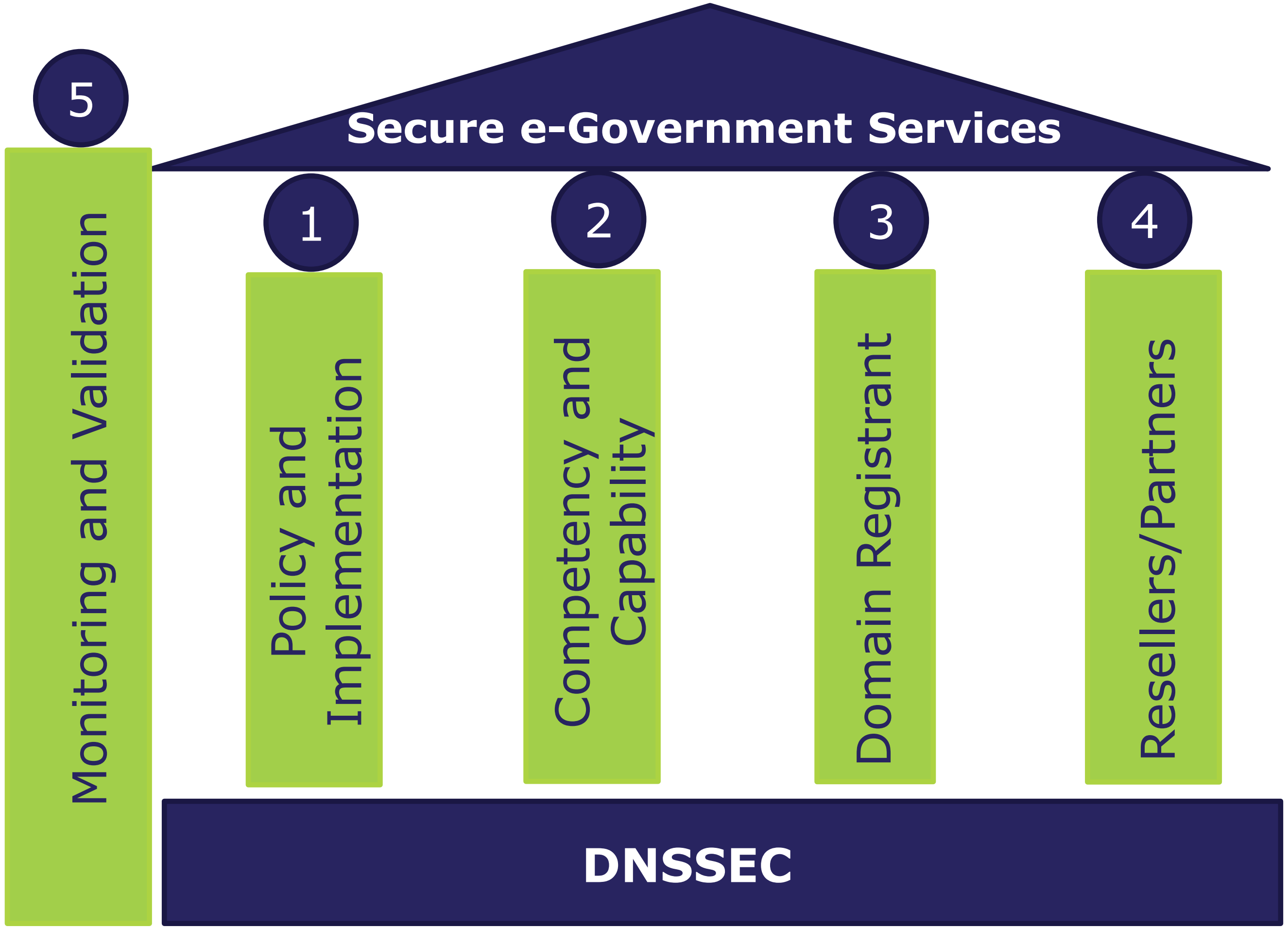
.myNIC

DNSSEC Adoption For .GOV.MY Domains

Objective

- To create a secure e-Government services to support the national digital economy in increasing **public trust** towards the services provided by the government.

The Pillars Adopting DNSSEC .GOV.MY Domains



Secure e-Government Services

5 Monitoring and Validation

1 Policy and Implementation

2 Competency and Capability

3 Domain Registrant

4 Resellers/Partners

DNSSEC

1. Policy and Implementation

Established collaboration with **National Cyber Security Agency (NACSA)** and **Malaysia Administrative Modernisation and Management Planning Unit (MAMPU)** to Secure e-Government Services.

Policy maker for National Cybersecurity

Policy maker for all government IT services

.MY domain name Registry

1. Policy and Implementation (*Cont..*)

Challenges that we faced

1. Clarity on responsibilities between the policy makers
2. Infrastructure and technology readiness to support DNSSEC
3. Lack of understanding on DNSSEC

How we overcame the challenges?

1. Ensure approval and support for the security enforcement from the correct stakeholders
2. Upgrading or conducting a tech refresh on the infrastructure and technology to support the DNSSEC
3. Conducted training, provide testing domain in the real environment to deploy DNSSEC to gain their confidence

2. Competency and Capability

Challenges that we faced

1. Administrative overhead concerns on the DNSSEC Keys Management
2. Understand of the DNSSEC configurations
3. Unclear SOP to manage the DNSSEC

How we overcame the challenges?

1. Provide technical hands-on workshop to upskill the DNS Administrator to reduce the administrative and configurations issues and risks
2. Provide our processes and best practices to help the DNS Administrator manage the DNSSEC

3. Domain Registrant

Challenges that we faced

1. Fear of domain service interruption with DNSSEC implementation
2. No subject matter expert to consult related on DNSSEC issues or queries
3. Low participation from government agencies due to ambiguity of the direction

1,040

Total domain .gov.my

500

DNSSEC Enabled

How we overcame the challenges?

1. Enforcement from **NACSA** and **MAMPU** to encourage more participant from the government agencies
2. Conducted awareness and technical hands-on workshop with end-to-end process using our best practices for deploying DNSSEC to proof it works
3. Provided support and assurance to solve DNSSEC issues / queries via our 24x7 customer care
4. Reduced human errors on the DS records, implemented auto fetch the DS records through our Selfcare Management System

4. Resellers/Partners

Challenges that we faced

1 Multi providers has technical skill gaps in DNSSEC deployment and administration

2 Half of the domains hosted by the government appointed provider and the remaining by various providers

3 High cost imposed by the Resellers/Partners to deploy DNSSEC

Supported DNSSEC Resellers/Partners

exabytes

MERCUMAYA.NET We Host Your Business

SPANLOGIC

serverfreak Premium Hosting Solution

i-Skill.com

CSC

Resellers/Partners (*Cont..*)

How we overcame the challenges?

1 Provide technical workshop to Resellers/Partners to upskill

2 Engage with the single point of contact which appointed by the government to deploy DNSSEC

The remaining of the agencies, we sent official email invitation with reference to the enforcement direction from NACSA and follow up by calls to confirm their participation

3 The Resellers/Partners confidence and comfortable on the DNSSEC working mechanisms throughout Reseller Training Program

Supported DNSSEC Resellers/Partners

exabytes

MERCUMAYA.NET
We Host Your Business

SPANLOGIC

serverfreak
Premium Hosting Solution

i-Skill.com

CSC

5. Monitoring and Validation

Challenges that we faced

1 Unclear on how to validate the DNSSEC being signed successfully

2 Lack of technical know how to use the DNSSEC tools

https://dnsviz.net

https://dnssec-analyzer.verisignlabs.com

How we overcame the challenges?

1 Provide training and documentations to the DNS Administrator on how to use the DNSSEC tools for validation, monitoring and troubleshooting

2 In addition, we performed pre-checks on the zone files and full chain of trust is tested before the signed zones are propagated.

The process will stop if there are non-compliance detected and require human intervention to inspect and rectify

Steps pre-check for all 9 zones:

1. 2FA
2. DomainValidation
3. SOA checks
4. Zones shrinkage
5. Full Chain of Trust tested prior the signed zones can be propagated

Q & A

mastura@mynic.my

Thank you

MYNIC Berhad
Level 3, Tower 2,
Menara Cyber Axis,
Jalan Impact,
63000 Cyberjaya
Selangor Darul Ehsan
Malaysia

tel
+603 8008 2000
fax
+603 8008 2020
email
corpcom@mynic.my

MYNIC Berhad @mynicberhad

.myNIC

An agency under

Ministry of Communications and
Multimedia Malaysia