Dutch municipalities and IPv6: The success of a focussed approach

Gerben Klein Baltink
Chair
Internet Standards Platform

Herman Timmermans
Projectmanager IPv6 Implementation
VNG Realisatie

Joost Tholhuijsen
Sr. Consultant IPv6 Implementation
VNG Realisatie

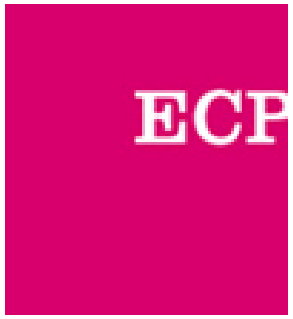
Internet Standards Platform

Ministerie van Economische Zaken

Internet Society

RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Dutch Standardisation Forum



Nationaal Cyber Security Centrum
Ministerie van Veiligheid en Justitie

Modern Internet Standards

- IPv6 (modern internet address)
- DNSSEC (signed domain)
- HTTPS+HSTS (secure website connection)
- DMARC+DKIM+SPF (prevention of mail spoofing)
- STARTTLS+DANE (prevention of mail eavesdropping)

Internet.nl
IS YOUR INTERNET UP TO DATE?

Dutch policy on open standards

In general:

- Open standards are the norm
- Goal: interoperability and vendor neutrality

Comply-or-explain:

- For selected open standards
- When governements invest/procure
- List with 41 open standards
  - Internet and security
  - Document and web
  - E-invoicing and administration
  - ...

Modern Internet Standards provide for more reliability and further growth of the Internet. Are you using them?

Test your website

Modern address? Signed domain? Secure connection? Security options?

about the test ›

Your domain name:

www.example.nl

Start test

Test your email

Modern address? Signed domain? Anti-phishing? Secure connection?

about the test ›

Your email address:

@ example.nl

Start test

Test your connection

Modern addresses reachable? Domain signatures validated?

about the test ›

Start test

News

Next major release of Internet.nl will use the new TLS guidelines ›

Open source release Internet.nl including 'security headers' ›

Hall of Fame

14161 websites with 100% score
Latest entry: 12-06-2019

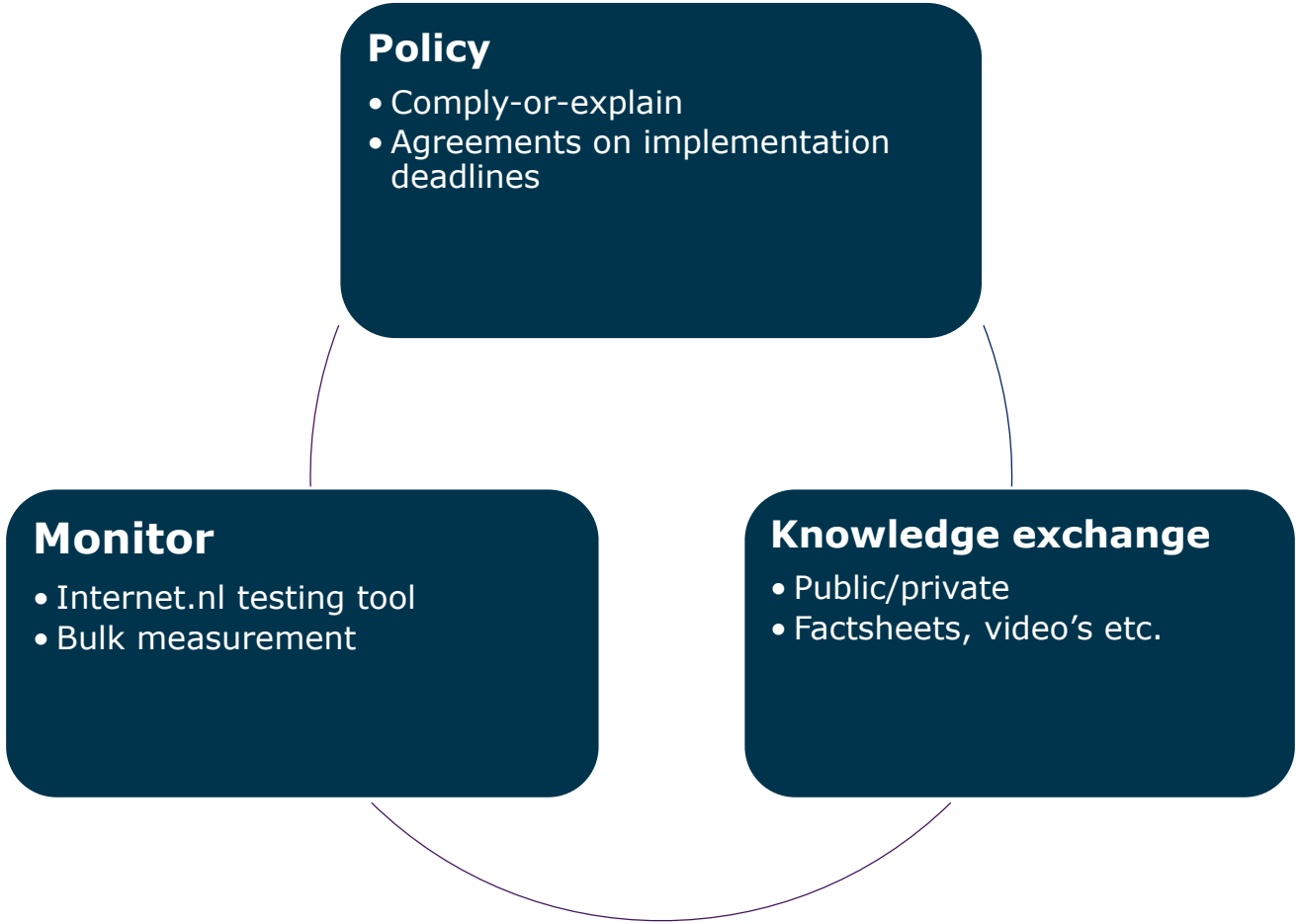
- ✓ www.reclassering.nl
- ✓ digishark.nl

Statistics

203697 website tests

- ✓ 100% score: 14161 websites
- ✗ 0-99% score: 189536 websites

Adoption strategy internet standards (Dutch Government)



VNG Realisatie

- VNG is the Association of Netherlands Municipalities
- Association has been established in 1912 and represents all 355 Dutch municipalities
- VNG supports and promotes the strength and quality of local administrations
- *VNG Realisatie* prepares and supports new developments on IT within VNG
- Close cooperation with other governmental organisations, especially *Dutch Standardisation Forum* and *Logius*

IPv6 implementation Dutch Municipalities

- Focus on IPv6 for web presence: websites, email
- Goal: every municipal website can be accessed through IPv6 by the end of 2019, email access through IPv6 by mid 2020
- Internal implementation IPv6 will start from 2020 onwards
- Implementation of IPv6 is also part of development of private community cloud infrastructure (*GGI*) programme

IPv6 status Dutch municipalities (Oct. 2019)

- Municipal websites dual-stack: 62% [n=221]
- Email dual-stack: 16% [n=56]

- Growth of IPv6 reachable websites is achieved in almost 1,5 year: from 19% by the end of 2017 to 62% today

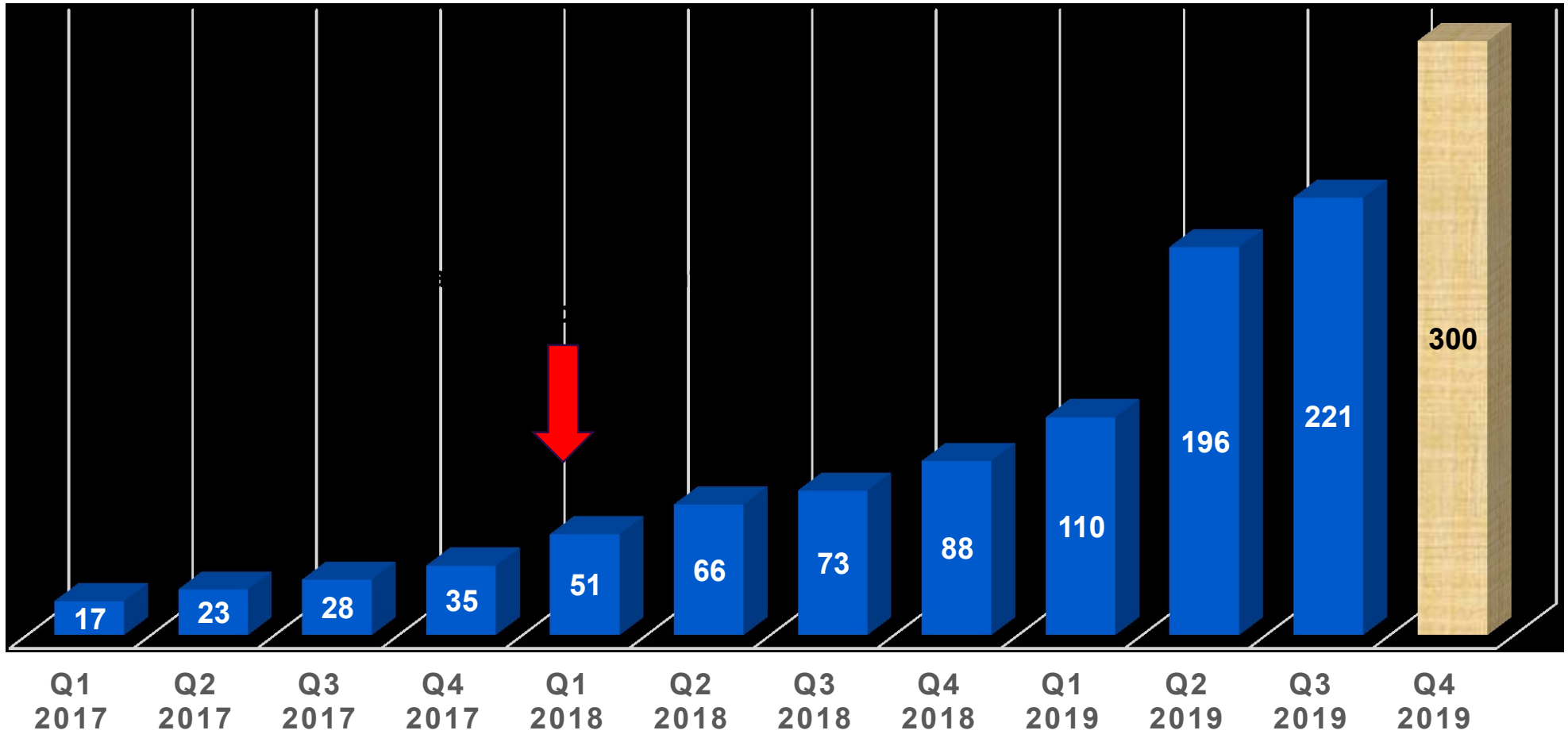
- Email needs special attention
- Implementation of IPv6 on internal networks has been launched as a pilot action within 6 municipalities

The ‘IPv6-ification’ of Dutch Municipalities

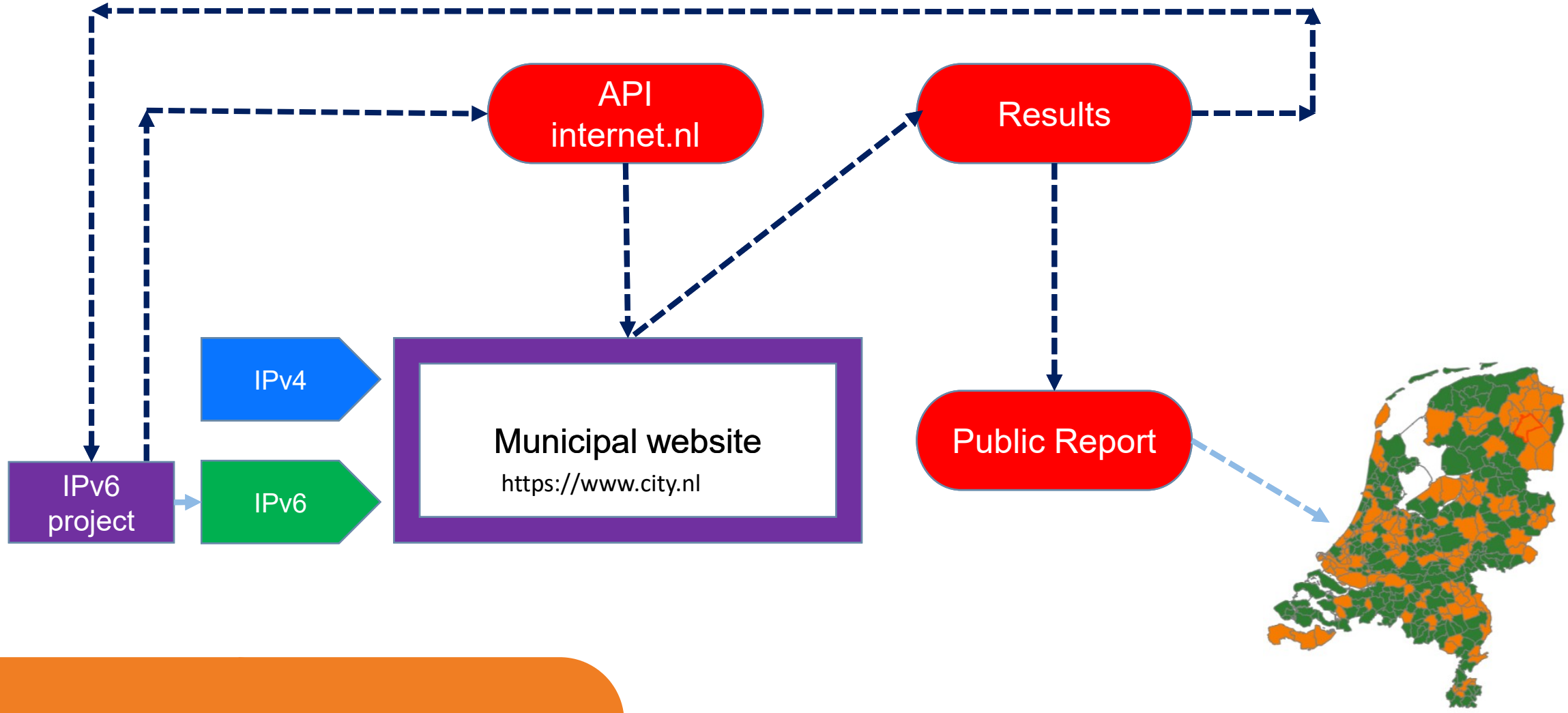
Green= main municipal website dual-stack

Sources: www.internet.nl and https://www.waarstaatjegemeente.nl/dashboard/Dienstverlening-en-digitalisering

Increase of Dutch municipal websites reachable via IPv6



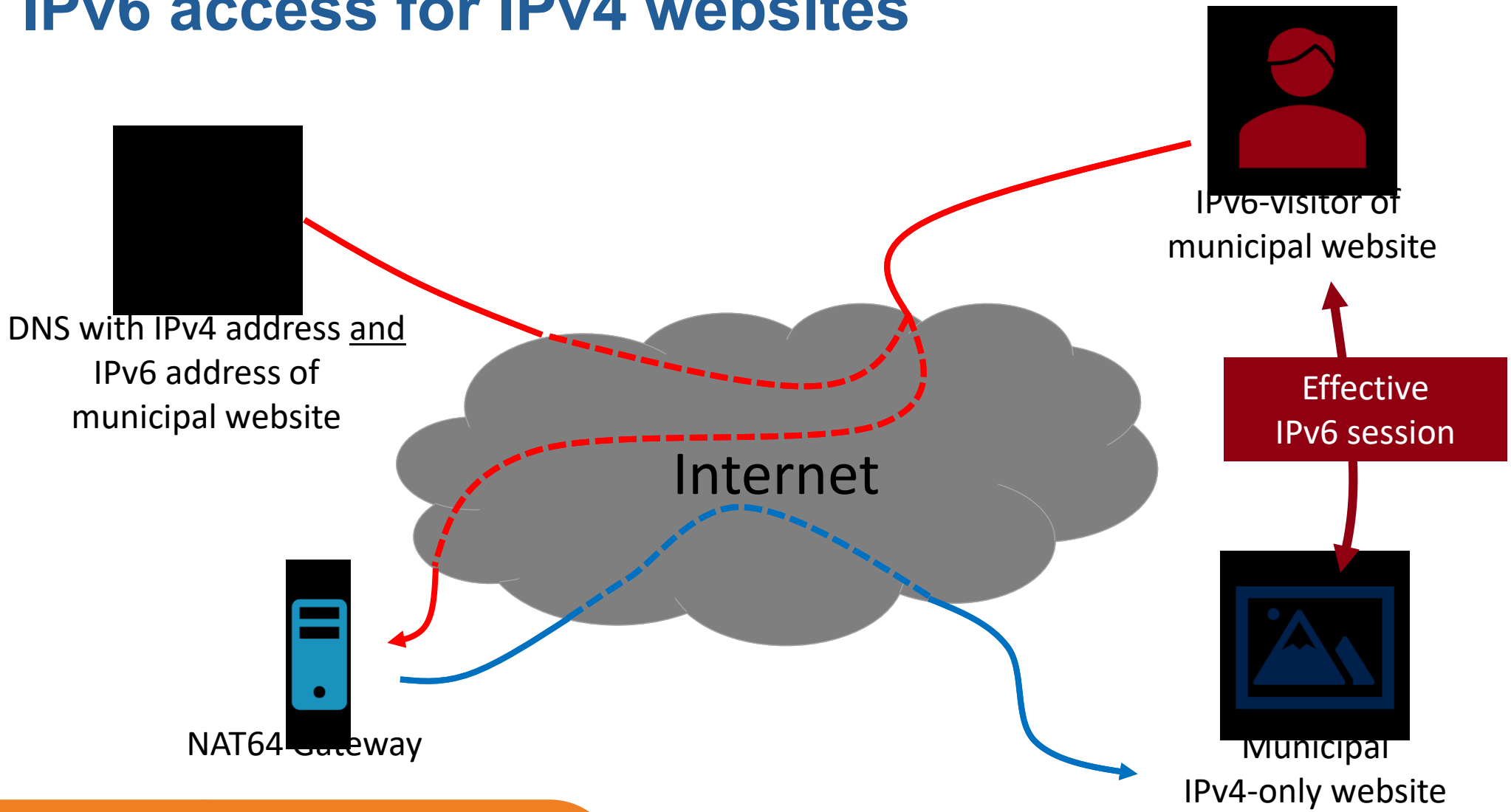
The closed loop approach



IPv6 implementation approach Dutch municipalities

- Dedicated implementation ‘hands-on’ team of 4
- Continuous measurement of progress using ‘Internet.nl’
- Presentation of achieved results in monthly update through the public website: ‘waarstaatjegemeente.nl’
- Use of dedicated NAT64 translation gateway
  → remove constraint of non-compliant website (temporarily)
- Promotion and communication support: video*, live and web presentations, management letters, social media

IPv6 access for IPv4 websites



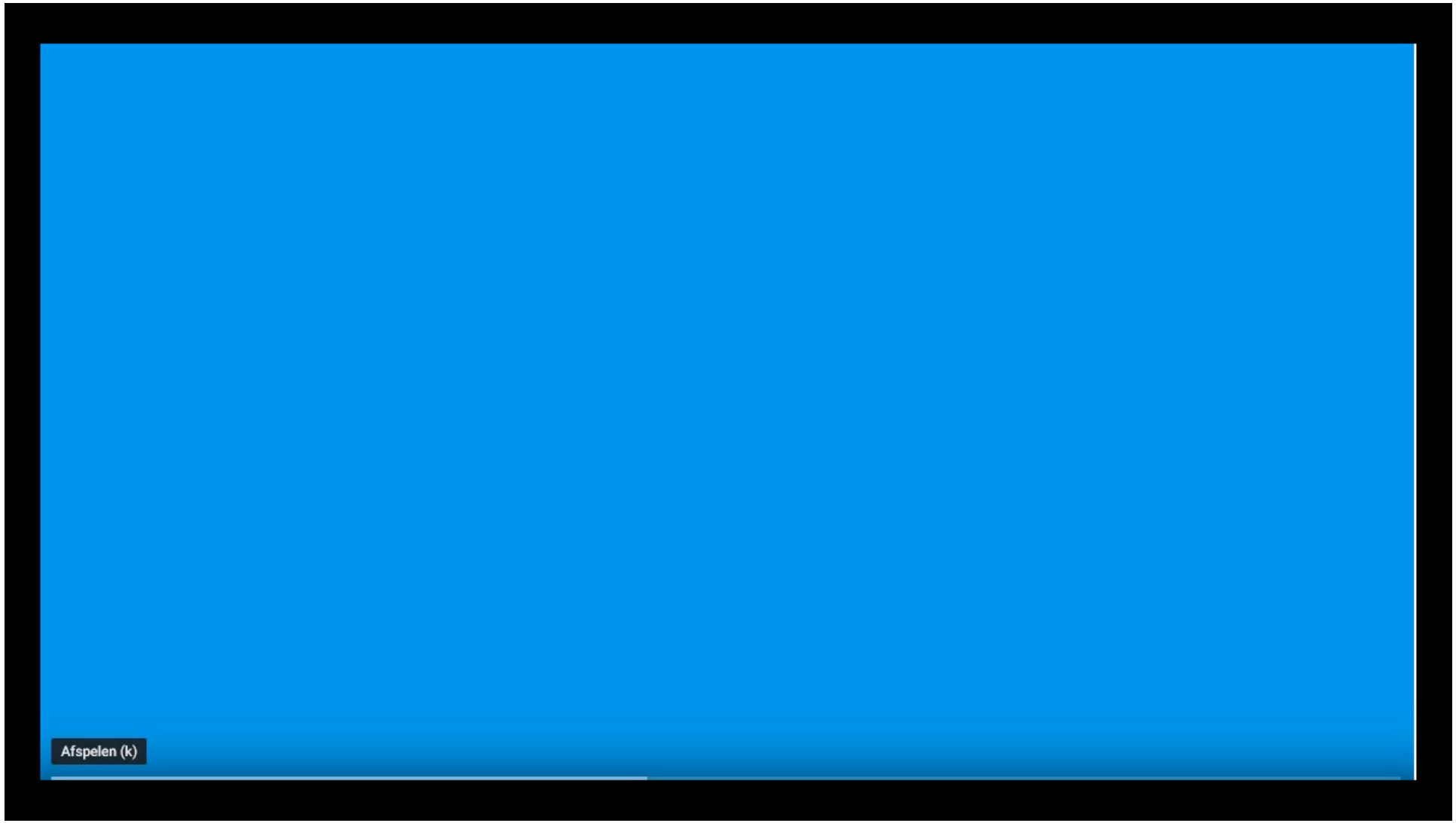
IPv6 access for IPv4 websites

- Dutch municipalities have to use so called governmental IPv6 addresses
- These addresses have a specific range: only for governmental use
- To implement these addresses we use a dedicated IPv6 Address Framework, coordinated with Logius
- Logius acts as an intermediate between governmental organisations and RIPE concerning the request for and the usage of IP-addresses

Marketing & communication approach

- Celebrate achieved goals
- Use targeted messages
- Use every relevant communication channel to spread the message

Video



The next step

- Accellerate the implementation of IPv6
  Example: IPv6 week for municipalities, suppliers/vendors and other governmental organisations, 2-4 Oct 2019

- Manifesto for a government-wide implementation of IPv6:
  - Every Dutch governmental organisation can be reached via IPv6 by the end of 2021

- Ahead of that:
  - All Dutch municipal websites can be accessed by IPv6 by the end of this year, and by e-email by mid 2020

Lessons learned

- Do not waste time with business case discussions!
- Keep it simple: focus on low hanging fruit: success breeds success
- Use existing company programs (in this case *GGI*) as a carrier for IPv6
- Remove every possible constraint or blockade beforehand
- Use of 'internet.nl' as dedicated measurement tool
- Present results continuously: consider naming and shaming
- Deploy a small dedicated team of hands-on specialists: cover development **and** implementation. Provide checklists and guidelines (in cooperation with e.g. SURFnet)
- Target messages at the right levels: general management, IT specialists, operators
- Co-operate with vendors and suppliers

Additional info

- **Joost Tholhuijsen**
  - Joost.Tholhuijsen@vng.nl
  - LinkedIn: linkedin.com/in/joost-tholhuijsen
- **Herman Timmermans**
  - Herman.timmermans@vng.nl
  - LinkedIn: linkedin.com/in/htimmermans

Thank You !