

# Understanding IANA and its post-transition governance

Kim Davies

VP, IANA Services; President, PTI

**PTI** | An ICANN Affiliate

# Five years ago

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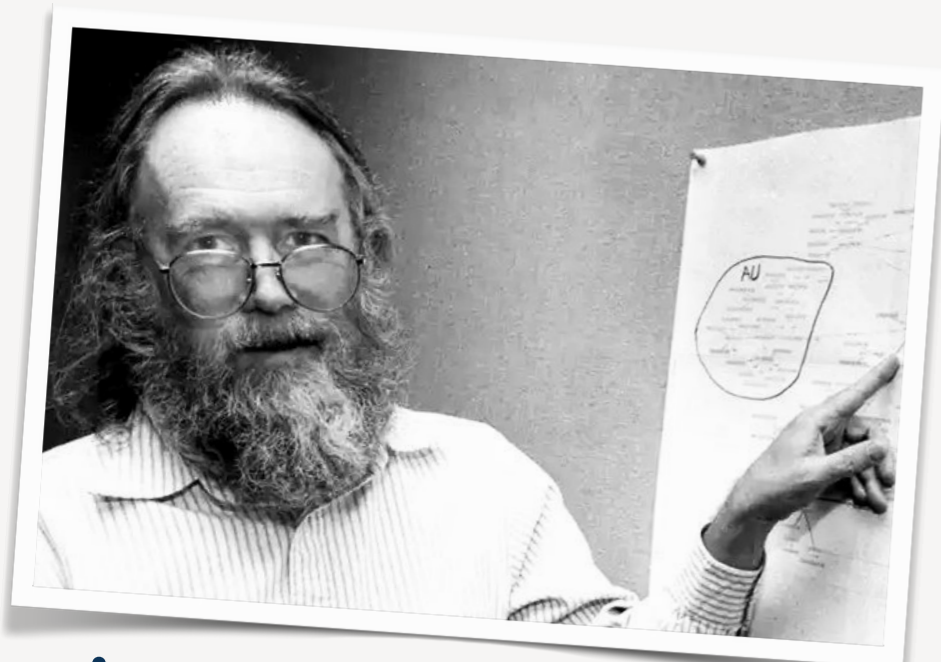
- From ICANN's inception until 2016, ICANN performed the IANA functions under a contract with the US Government
  - Prior to ICANN, IANA functions were activities under other US Government programs
- The **IANA stewardship transition** ended that contractual oversight role and replaced it with a model where the ICANN community oversees the functions
- The formal model the community designed creates a new non-profit that operates the IANA functions called **Public Technical Identifiers** (PTI), a backronym for *post-transition IANA*.

12am 1 October 2016  
The IANA contract ends

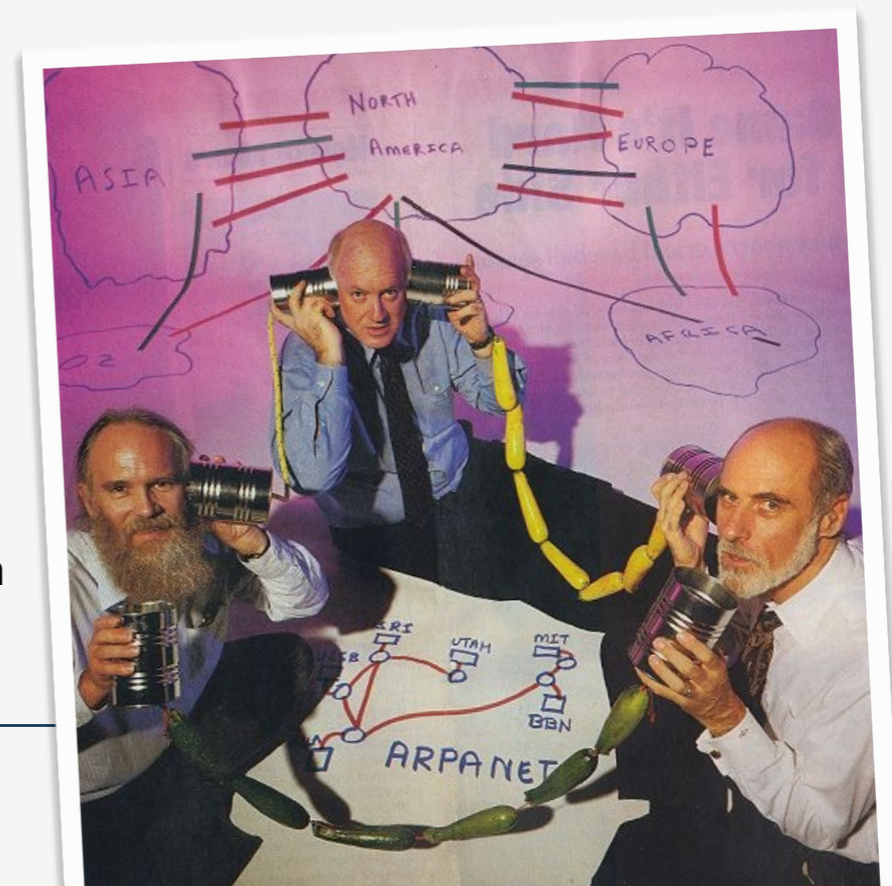


# What are the IANA functions?

- The record keeper for the unique names and numbers used by Internet technologies to interoperate
- The IANA functions pre-date ICANN. In 1998, ICANN was established to be the home of the IANA functions
- The unique identifiers include protocol parameters, Internet numbers and domain names
- The IANA team maintains these records according to policies adopted by Internet names, numbers and protocol standards communities

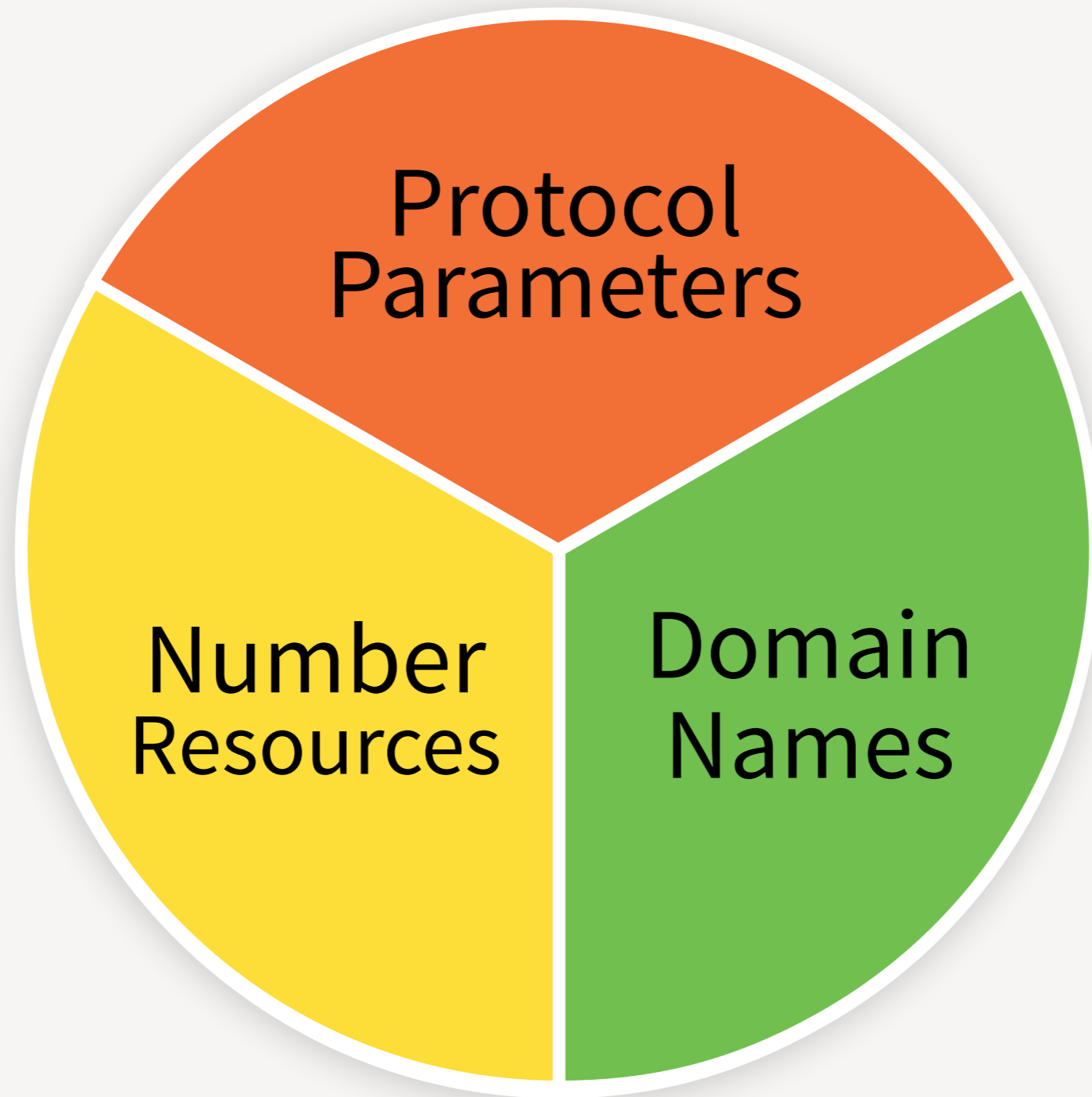


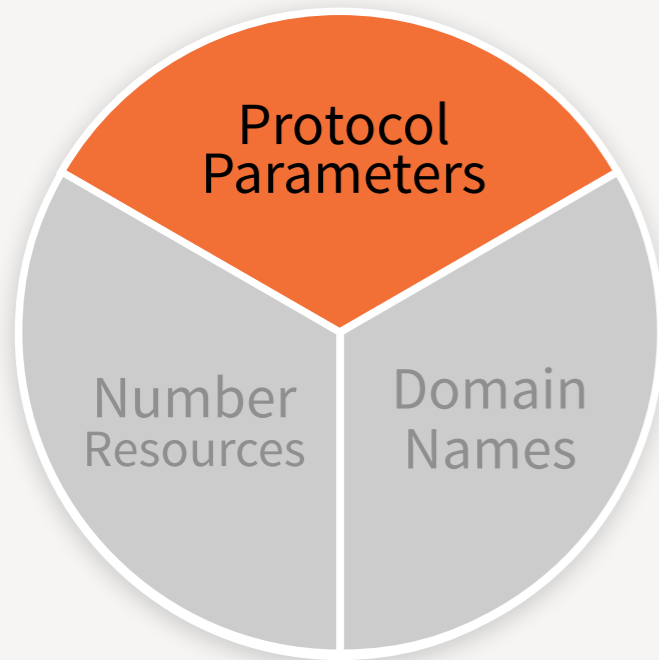
Jon Postel (L) started the IANA; with Steve Crocker and Vint Cerf (R)



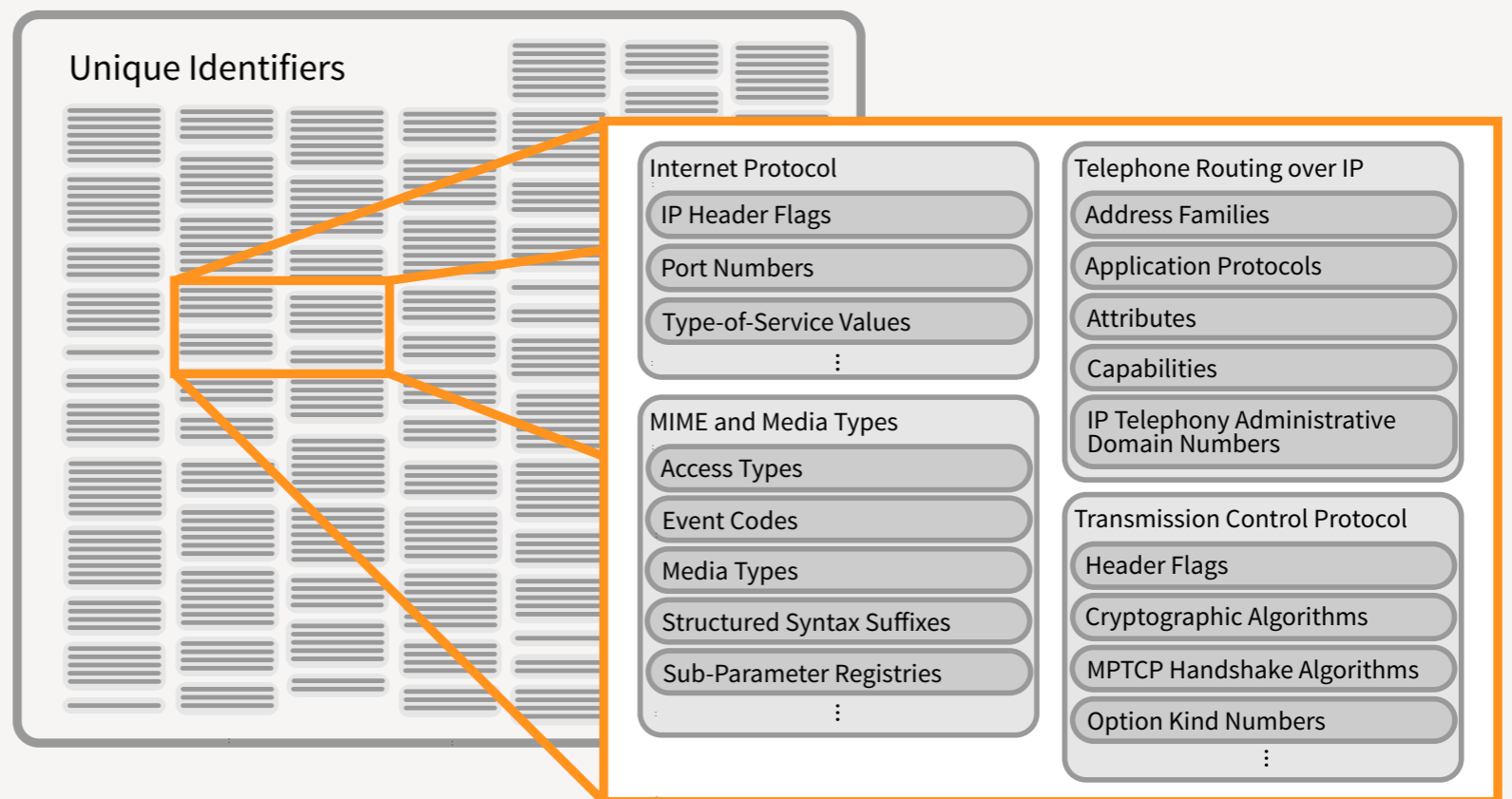
# The core IANA functions areas

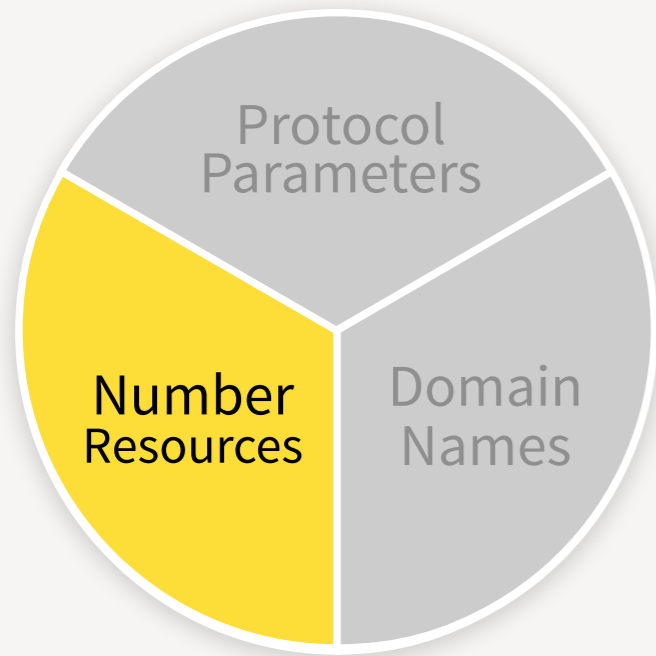
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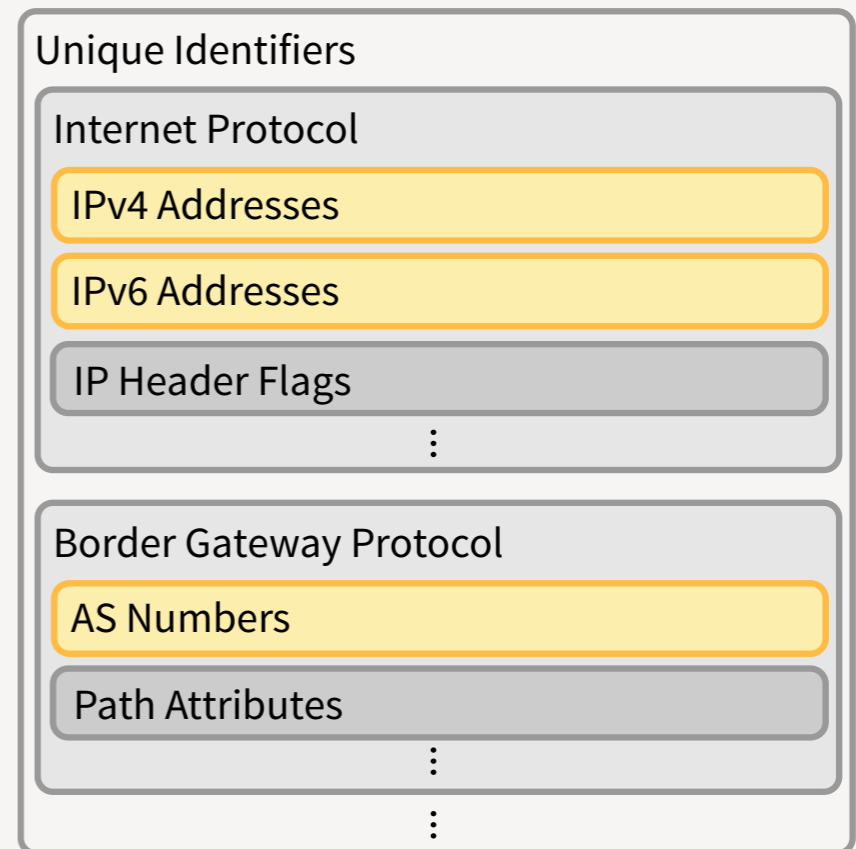
- **Protocol Parameters** are used everywhere and are directly issued by IANA. Rules differ for the qualifying criteria for each type. Applications are evaluated by IANA according to the set criteria.
- Most protocol parameters' visibility is limited to software implementors (i.e. inside software code).



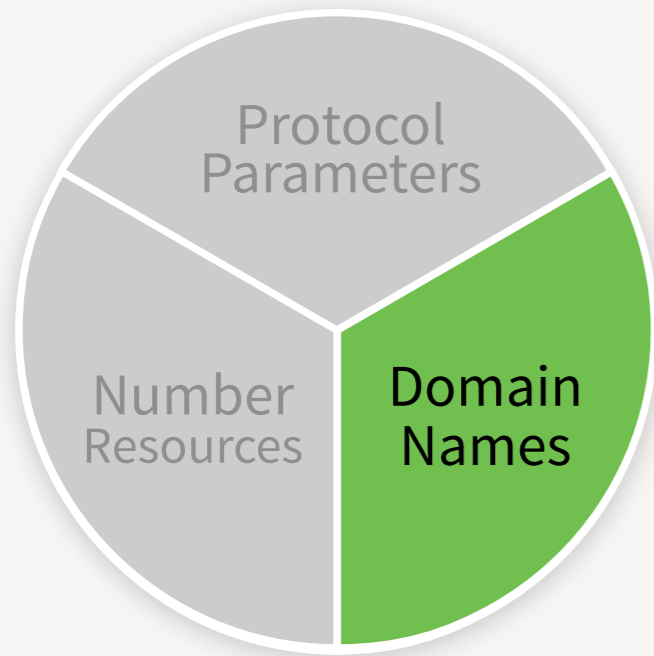


**Number Resources** are specialized forms of protocol parameters:

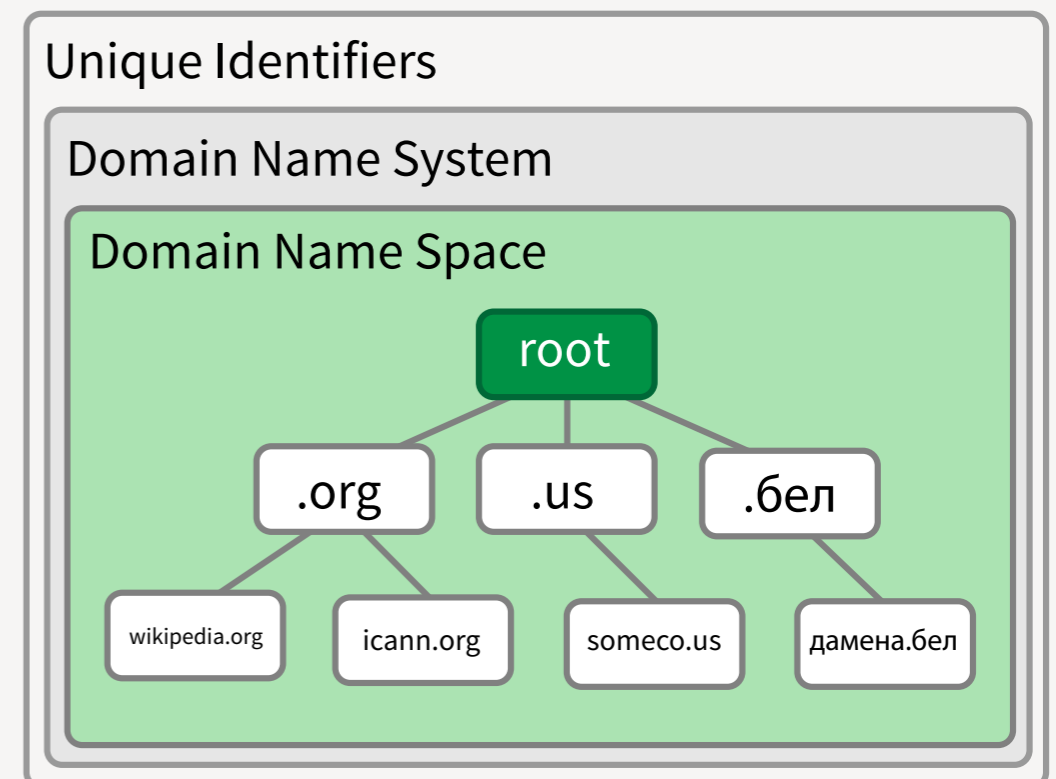
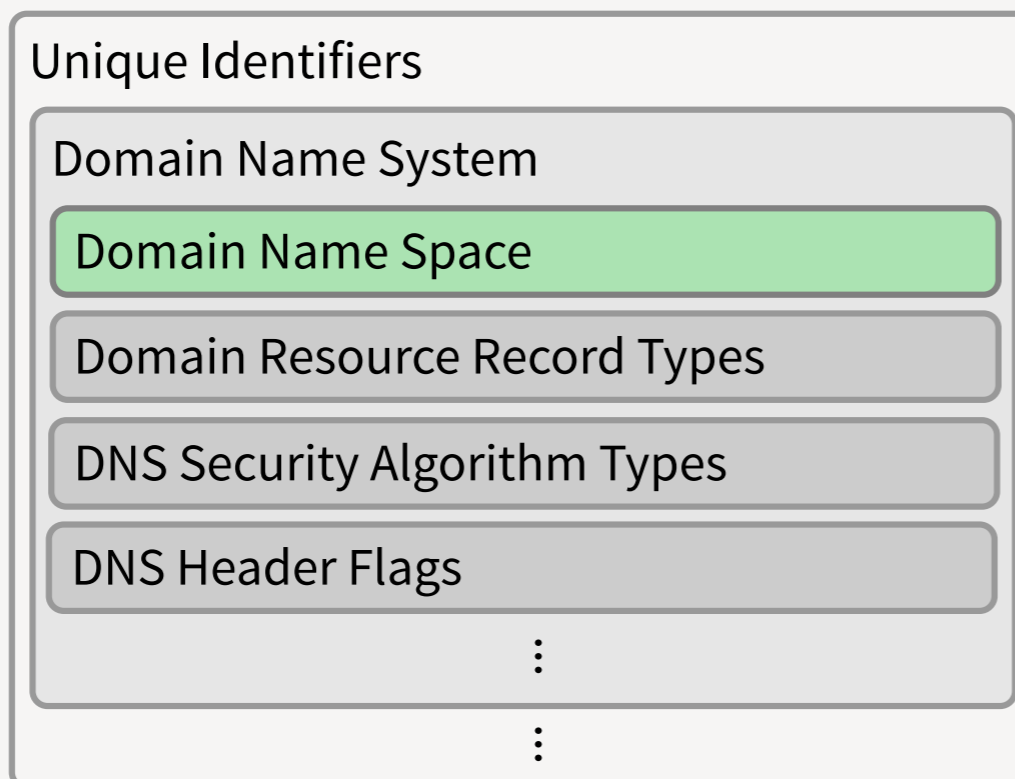
- IP Addresses: unique identifiers for devices on the Internet
- Autonomous System (AS) numbers: unique identifiers that group networks on the Internet

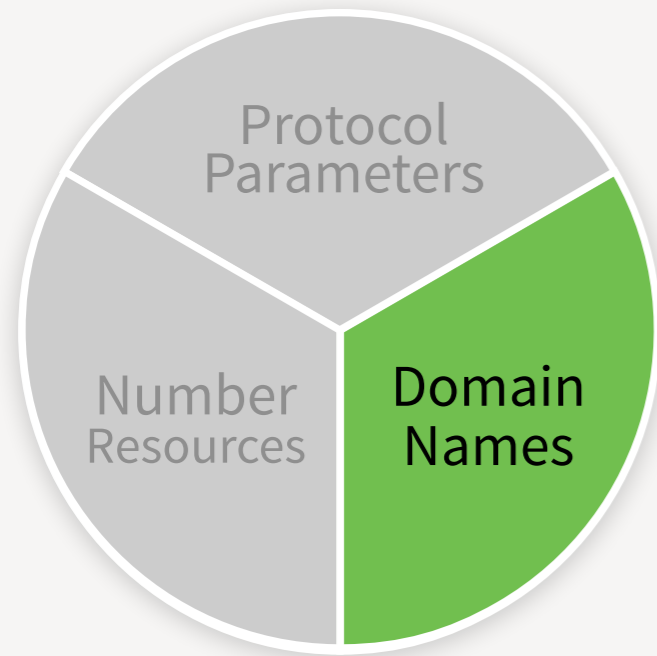






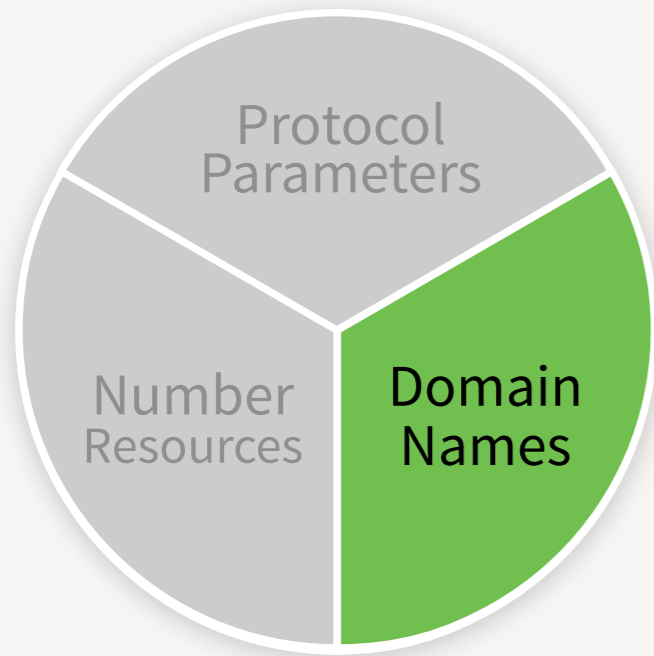
- Most notable IANA function is managing the DNS root zone, which defines top-level domains
- Like number resources, the domain name space is hierarchically delegated, with IANA responsible for the upper-most level of allocations



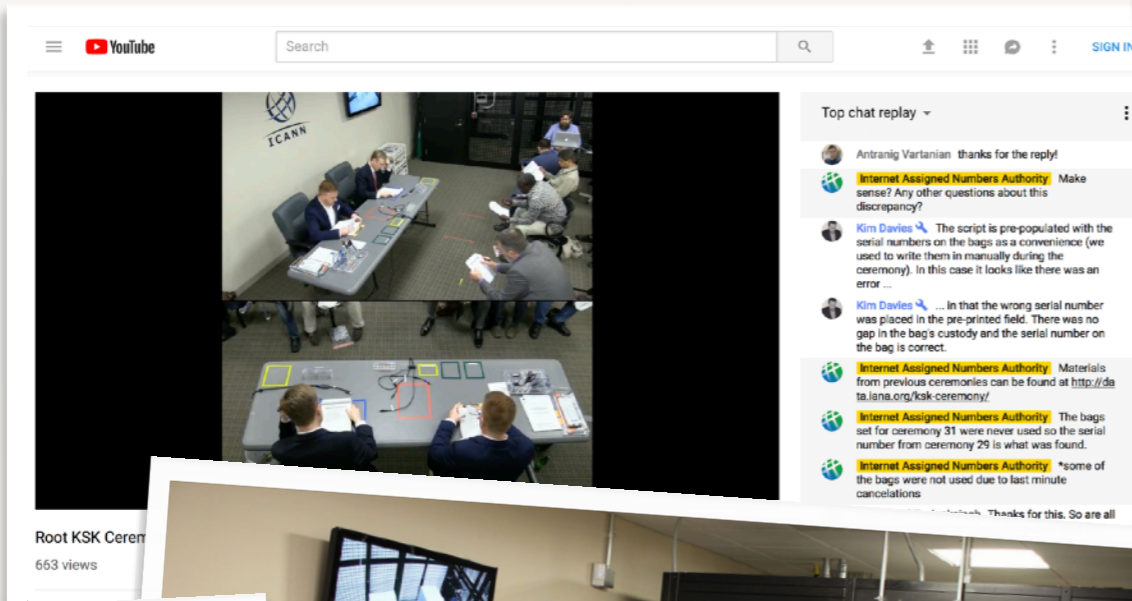


- The IANA tasks include:
  - Receiving and evaluating root zone changes requests against policies and operational requirements:
    - Assignment and transfer of TLDs
    - Routine maintenance of name servers and other technical elements
    - Points of Contact
  - Transmitting vetted changes for implementation in the root zone and root servers
  - Operating the .INT domain for intergovernmental treaty organizations
  - IDN table/LGR repository maintenance





- Managing the trust anchor for the DNS (the “Root Zone Key Signing Key”)
  - Using the key happens in public “key signing ceremonies”, involving trusted community representatives and other oversight.
  - Includes managing the lifecycle of the key, including when it is replaced (a “rollover”)



## Root KSK Ceremony 34

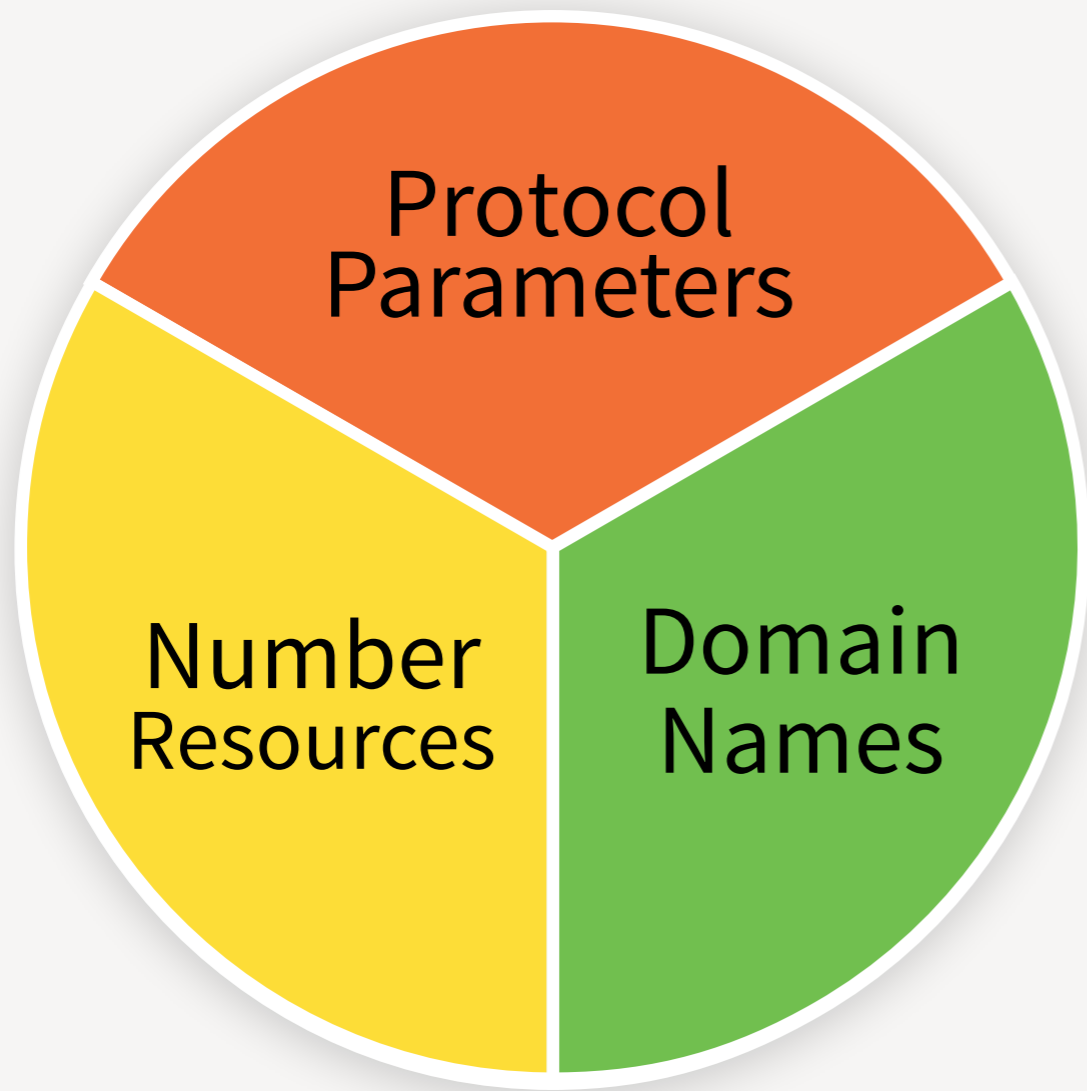
This DNSSEC key signing ceremony is planned for  
15 August 2018, 2000 UTC

|                |  |
|----------------|--|
| Location       | Root Zone Key Management Facility West<br>El Segundo, California, USA                |
| Ceremony Start | 2018-08-15 20:00:00 UTC<br>Wednesday 15 August 2018, 1 p.m. (local time at facility) |
| Objectives     | Sign the ZSK for 2018Q4  |

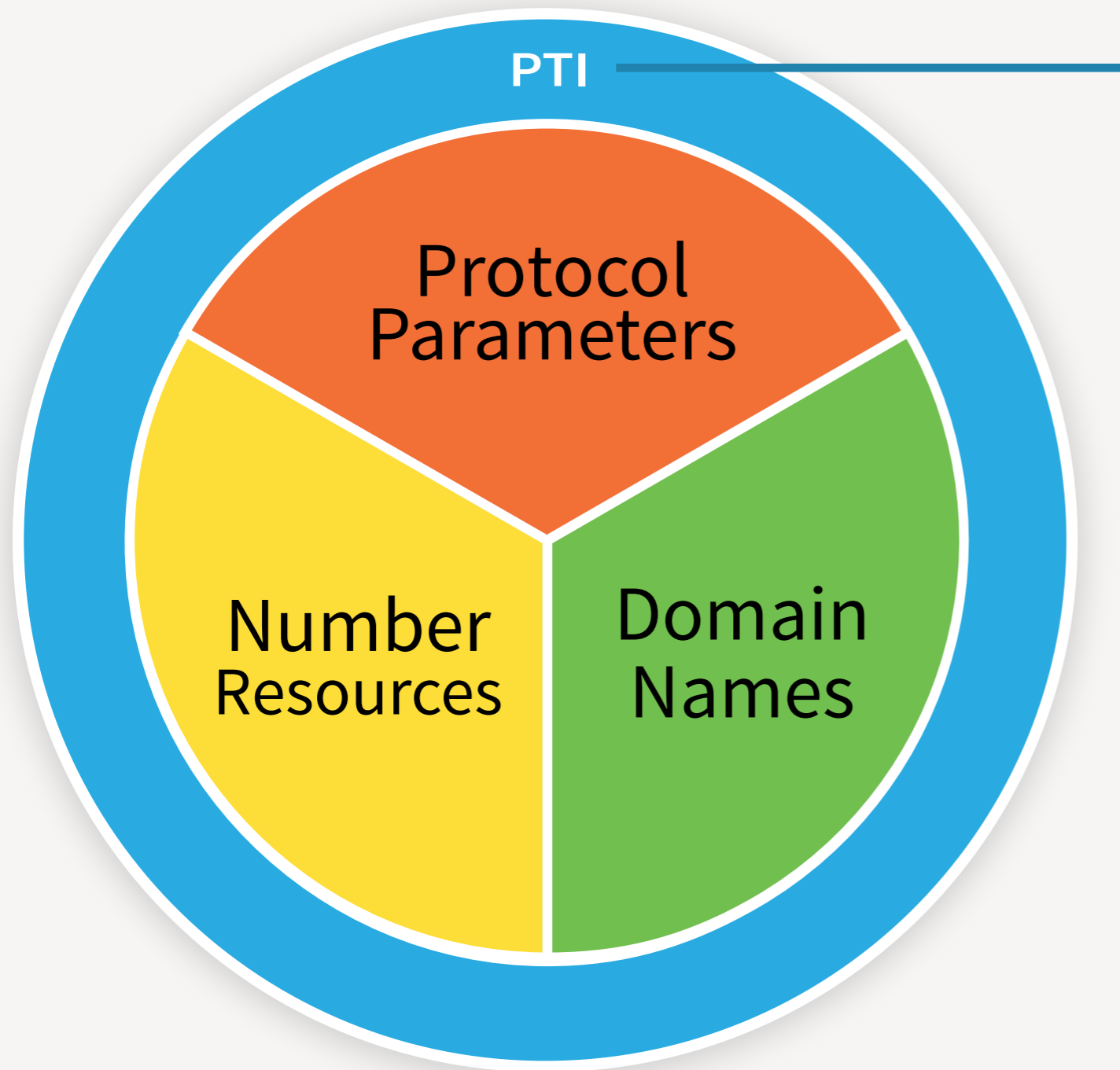
### Observing the ceremony

The key signing ceremony is a public event, and you are welcome to observe. Due to space only a small number of persons are able to participate as observers at a ceremony in person. We broadcast ceremonies as they happen, and will provide recordings after the ceremony is complete. Prior to observing a ceremony, we recommend you review the ceremony materials (i.e. the ceremony script) in advance.



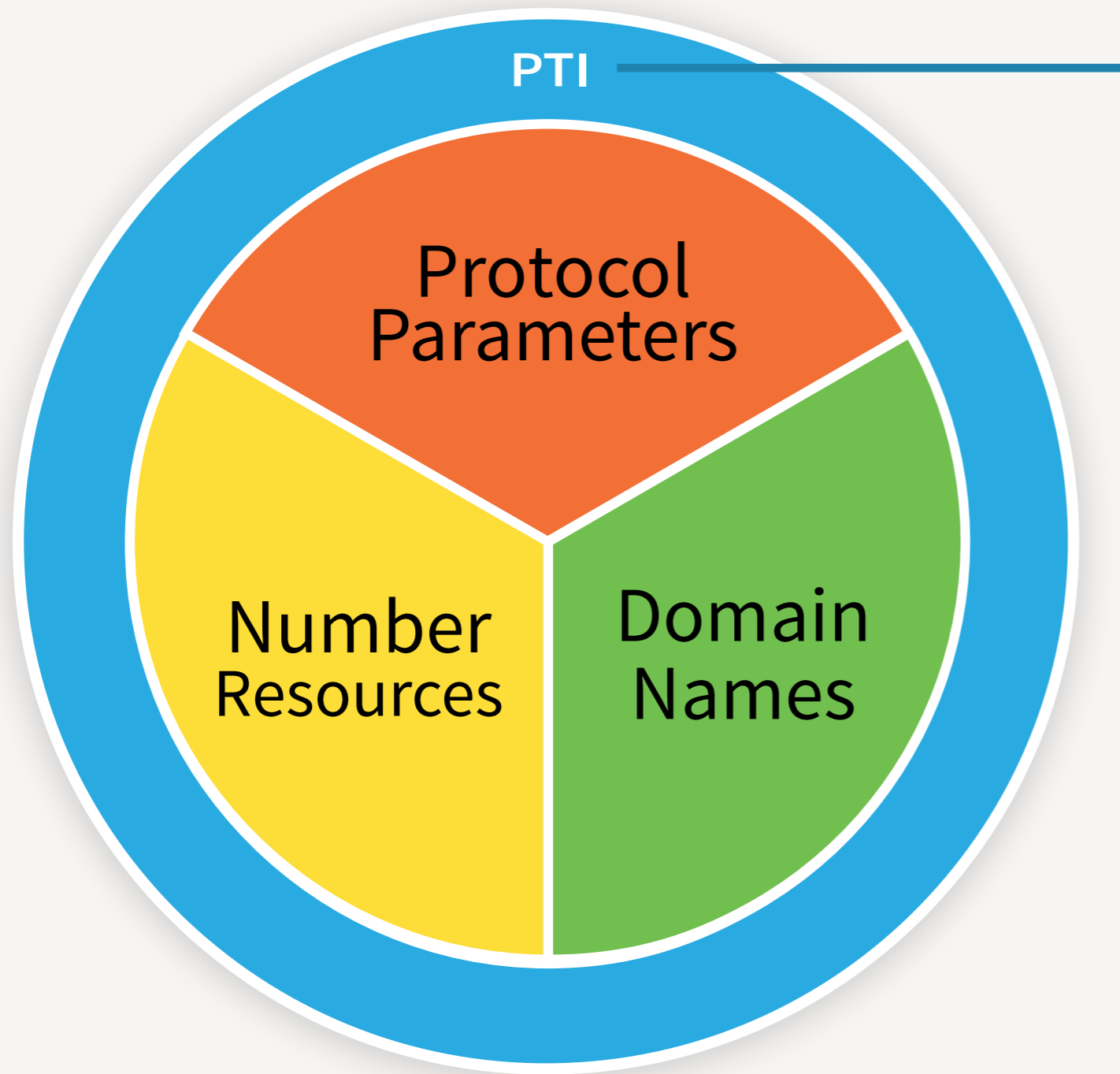


- Together, protocol parameters, number resources and domain names comprise the core IANA functions
- These divisions also represent the three different accountability mechanisms for these functions



## Public Technical Identifiers

- Performs the IANA functions
- Hires the IANA staff
- Is a non-profit organization created in 2016
- ICANN is its sole member (i.e. affiliate of ICANN)



## Public Technical Identifiers

- Five-member board of directors including 2 Nomcom appointees



**Lise Fuhr**  
CHAIR



**James Gannon**  
DIRECTOR

Nomcom Appointed



**Kim Davies**  
PRESIDENT

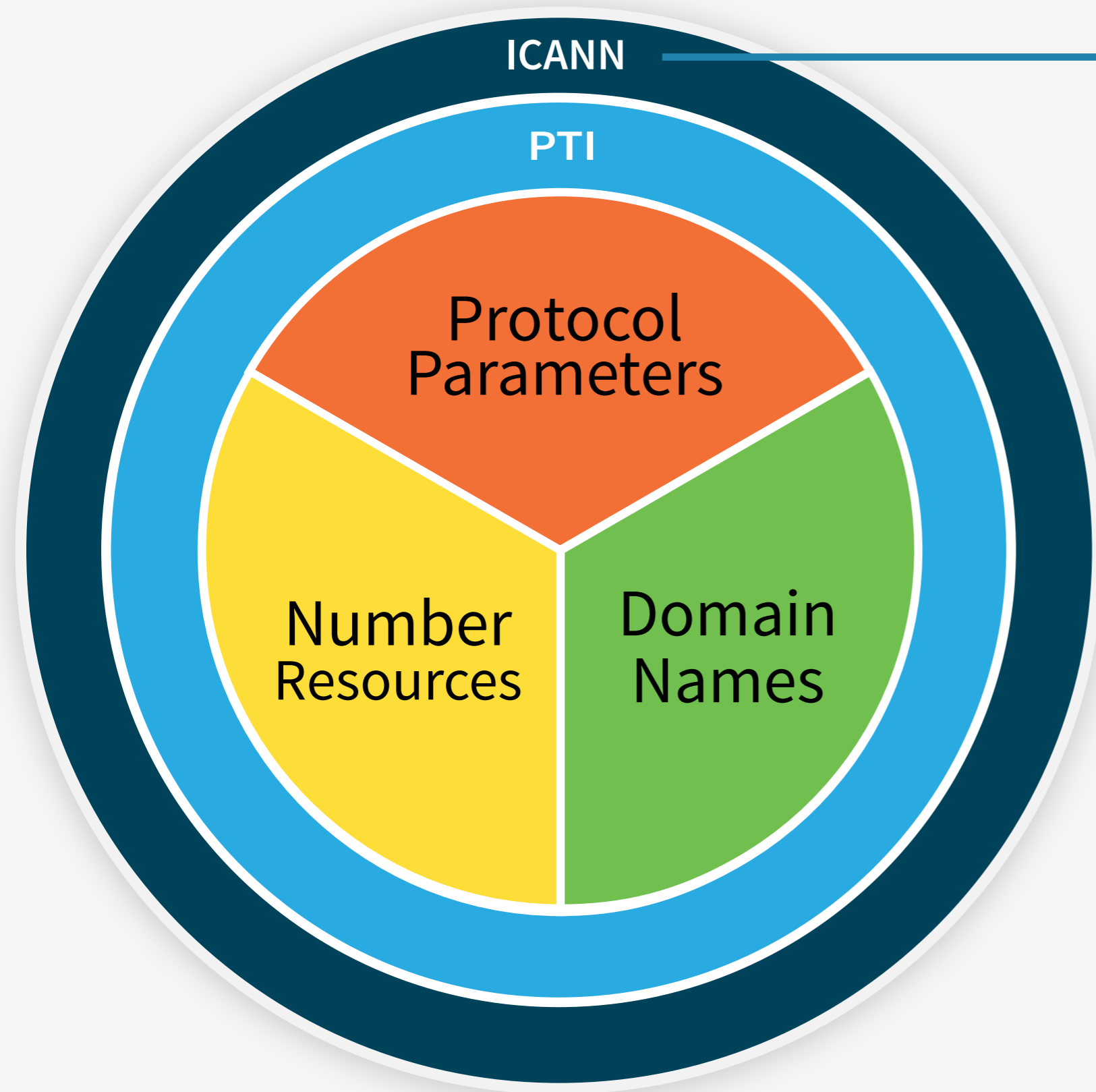


**Xavier Calvez**  
DIRECTOR



**Jia-Rong Low**  
DIRECTOR

ICANN Appointed



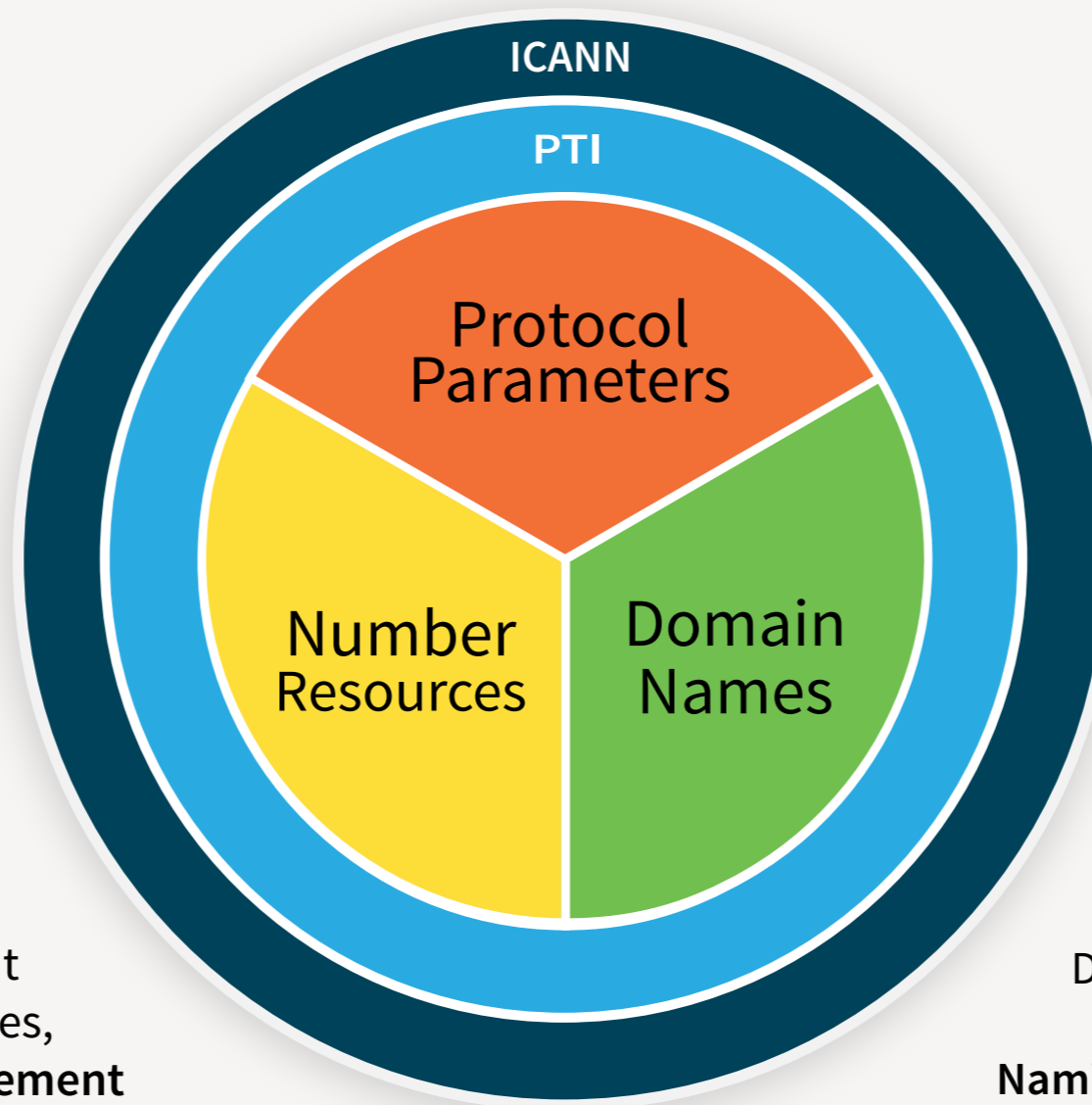
## ICANN

- Responsible for the IANA functions
- Contracts PTI to perform the IANA functions
- Oversees PTI's performance
- Provides shared and dedicated resources (Legal, IT, HR, Finance and many others)
- Provides all funding to PTI
- Operates additional accountability mechanisms such as Customer Standing Committee, IANA Naming Function Reviews



# Accountability

Protocol Parameter oversight  
through **Memorandum of Understanding**  
between **IETF** and **ICANN**,  
subcontracted from **ICANN** to **PTI**



Number resource oversight  
by Regional Internet Registries,  
governed by **Service Level Agreement**  
between **ICANN** and **RIRs**,  
subcontracted from **ICANN** to **PTI**

Domain Name oversight by **ICANN**;  
governed by  
**Naming Contract** between **ICANN** and **PTI**;  
performance oversight by  
**ICANN Customer Standing Committee**

# Performance Reporting

- Monthly reporting for each of the three areas

IANA Protocol Parameter Service  
Monthly Report  
October 15, 2019

For the Reporting Period of  
September 1, 2019 – September 30, 2019

Prepared by: Amanda Baber  
amanda.baber@iana.org

Executive Summary  
Statistics  
IESG approved documents (a)  
Reference Updates (b)  
Last Calls (c)  
Evaluations (d)  
Media (MIME) type requests (e, f)  
New Port number requests (g)  
Modification to and/or deletions of Port number requests (h)  
New Private Enterprise Number (PEN) requests (i)  
Modifications to and/or deletions of PEN requests (j)  
New TRIP/ITAD Numbers (k)  
Requests relating to other IETF-created registries for which the request rate is more than five per month (l)  
Deliverables  
Provide publicly accessible, clear and accurate periodic statistics  
Track and publicly report on a monthly basis (monthly report)  
Conclusions

**Executive Summary**

This monthly report provides statistical information of the IANA Services operations as they relate to the IETF. Also included are the deliverables for this reporting period in accordance with the Supplemental Agreement (SLA) between ICANN and the IAOC with the effective date 31 July 2019.

For this reporting period, we completed 90 of 90 requests within the IANA Services processing goal times (100%).

**Protocol Parameters**

### Number Resource Performance June 2019

#### Performance Summary

These performance targets are derived from section 4.3 of the Service Level Agreement for the IANA Numbering Services for the allocation of unicast IP addresses and AS numbers to the five Regional Internet Registries.

- Requests acknowledged on time (100%)
- Responded on time (100%)
- Implemented on time (100%)
- Implemented accurately (100%)

#### Individual Requests to Regional Internet Registries

| Date       | Request Type | Request Processing Details   |
|------------|--------------|--|
| 2019-05-13 | IPv6 Unicast | <ul style="list-style-type: none"><li>Responded on time (0.3 days)</li><li>Implemented on time (0.2 days)</li><li>Clarification asked on time (2.1 days)</li><li>Accurately implemented</li></ul>  |
| 2019-06-11 | AS Number    | <p>2019-06-11 01:42:36 Request received from APNIC</p> <p>0.6 business days</p> <p>2019-06-11 15:12:36 Request acknowledged</p> <p>Acknowledged on time (within 2 business days)</p> <p>1.1 business days</p> <p>2019-06-12 18:03:29 Implemented using resource(s)</p> <p>Implemented on time (within 4 business days)</p> <p>Implemented accurately</p> |

**Number Resources**

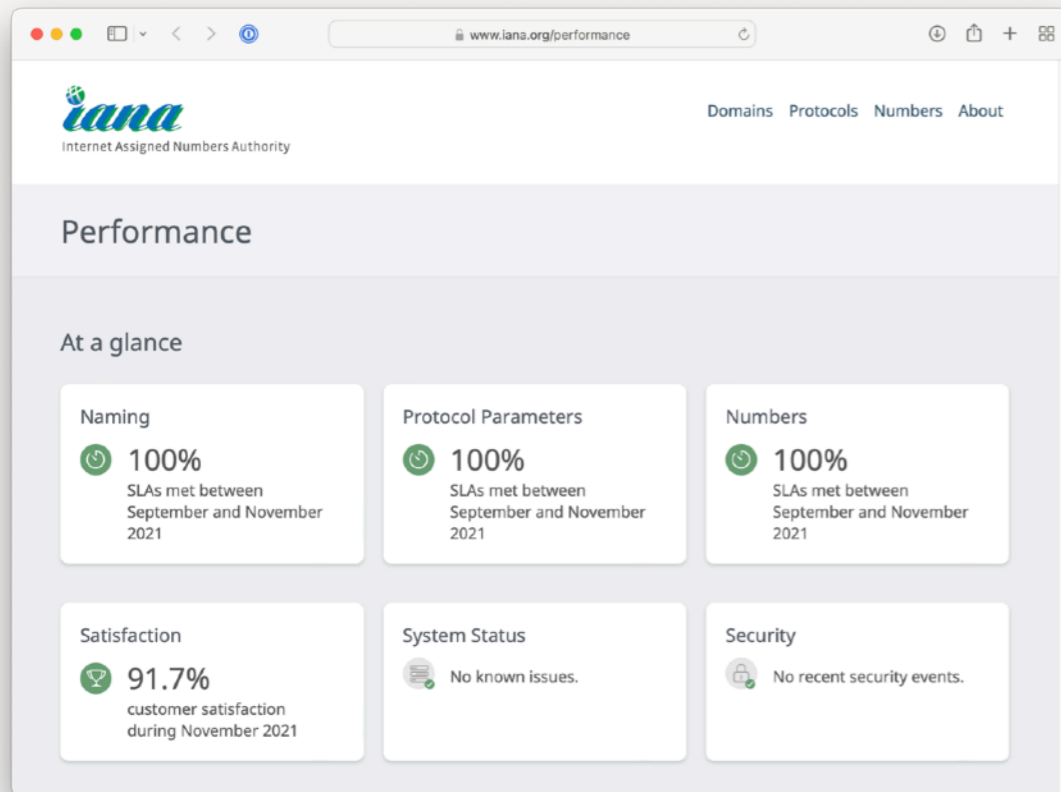
### Summary of Performance

| Metric                         | Category                   | Expected         | Actual   | Detail |
|--------------------------------|----------------------------|------------------|----------|--------|
| <b>Submission</b>              |                            |                  |          |        |
| Acceptance Recognition         | Routine (Technical)        | ≤60s (95.0%)     | ✓ 1.62s  | p5     |
| Acceptance Recognition         | Routine (Non-Technical)    | ≤60s (95.0%)     | ✓ 1.38s  | p5     |
| Acceptance Recognition         | gTLD Creation/Transfer     | ≤60s (95.0%)     | ✓ 1.06s  | p6     |
| Acceptance Recognition         | ccTLD Creation/Transfer    | ≤60s (95.0%)     | ✓ 0.85s  | p6     |
| Acceptance Recognition         | Other Changes              | ≤60s (95.0%)     | ✓ 0.66s  | p6     |
| Manual Lodgment Time           | Routine (Technical)        | ≤3d (95.0%)      | ✓ 0.18d  | p7     |
| Manual Lodgment Time           | Routine (Non-Technical)    | ≤3d (95.0%)      | ✓ 0.55d  | p7     |
| Manual Lodgment Time           | gTLD Creation/Transfer     | ≤3d (95.0%)      | ✓ 0.47d  | p7     |
| Manual Lodgment Time           | ccTLD Creation/Transfer    | ≤3d (95.0%)      | ✓ 0.47d  | p8     |
| Manual Lodgment Time           | Other Changes              | ≤3d (95.0%)      | ✓ 0.03d  | p8     |
| <b>Technical Checks</b>        |                            |                  |          |        |
| Technical Check (First)        | Routine (Technical)        | ≤50m (95.0%)     | ✓ 0.47m  | p9     |
| Technical Check (First)        | gTLD Creation/Transfer     | ≤50m (95.0%)     | ✓ 0.15m  | p9     |
| Technical Check (First)        | ccTLD Creation/Transfer    | ≤50m (95.0%)     | ✓ 0.2m   | p9     |
| Technical Check (First)        | Other Changes              | ≤50m (95.0%)     | ✓ 5.16m  | p10    |
| Technical Check (Retest)       | Routine (Technical)        | ≤10m (95.0%)     | ✓ 1.47m  | p10    |
| Technical Check (Retest)       | gTLD Creation/Transfer     | ≤10m (95.0%)     | ✓ 0.17m  | p11    |
| Technical Check (Retest)       | ccTLD Creation/Transfer    | ≤10m (95.0%)     | ✓ 0.17m  | p11    |
| Technical Check (Retest)       | Other Changes              | ≤10m (95.0%)     | ✓ 0.44m  | p11    |
| Technical Check (Supplemental) | Routine (Technical)        | ≤10m (95.0%)     | ✓ 0.47m  | p12    |
| Technical Check (Supplemental) | gTLD Creation/Transfer     | ≤10m (95.0%)     | ✓ 0.16m  | p12    |
| Technical Check (Supplemental) | ccTLD Creation/Transfer    | ≤10m (95.0%)     | ✓ 0.3m   | p12    |
| Technical Check (Supplemental) | Other Changes              | ≤10m (95.0%)     | ✓ 0.3m   | p13    |
| <b>Contact Confirmations</b>   |                            |                  |          |        |
| Email Dispatch                 | Routine (Technical)        | ≤60000ms (95.0%) | ✓ 1ms    | p13    |
| Email Dispatch                 | Routine (Non-Technical)    | ≤60000ms (95.0%) | ✓ 3ms    | p14    |
| Email Dispatch                 | gTLD Creation/Transfer     | ≤60000ms (95.0%) | ✓ 1ms    | p14    |
| Email Dispatch                 | ccTLD Creation/Transfer    | ≤60000ms (95.0%) | ✓ 1ms    | p14    |
| Email Dispatch                 | Other Changes              | ≤60000ms (95.0%) | ✓ 1ms    | p14    |
| Recognition of Confirmation    | Routine (Technical)        | ≤60000ms (95.0%) | ✓ 0.8ms  | p15    |
| Recognition of Confirmation    | Routine (Non-Technical)    | ≤60000ms (95.0%) | ✓ 1ms    | p15    |
| Recognition of Confirmation    | gTLD Creation/Transfer     | ≤60000ms (95.0%) | ✓ 0ms    | p16    |
| Recognition of Confirmation    | ccTLD Creation/Transfer    | ≤60000ms (95.0%) | ✓ 0ms    | p16    |
| Recognition of Confirmation    | Other Changes              | ≤60000ms (95.0%) | ✓ 0ms    | p16    |
| <b>Staff Processing</b>        |                            |                  |          |        |
| Validation and Reviews         | Routine (Technical)        | ≤60000ms (95.0%) | ✓ 0.85d  | p17    |
| Validation and Reviews         | Routine (Non-Technical)    | ≤60000ms (95.0%) | ✓ 1.02d  | p17    |
| Validation and Reviews         | gTLD Creation/Transfer     | ≤60000ms (95.0%) | ✓ 0.72d  | p17    |
| Validation and Reviews         | ccTLD Creation/Transfer    | ≤60000ms (95.0%) | ✓ 29.35d | p18    |
| Validation and Reviews         | Other Changes              | ≤60000ms (95.0%) | ✓ 3.78d  | p18    |
| Third Party Approval           | Other Changes              | ≤60000ms (95.0%) | ✓ 18.8d  | p19    |
| <b>Implementation</b>          |                            |                  |          |        |
| Root Zone Publication          | Root Zone Publication      | ≤28.47h          | ✓ 28.47h | p20    |
| Root Zone Publication          | Root Zone Publication      | ≤15.81h          | ✓ 15.81h | p20    |
| Root Zone Publication          | Root Zone Publication      | ≤3.06h           | ✓ 3.06h  | p20    |
| Root Zone Publication          | Root Zone Publication      | ≤15.55h          | ✓ 15.55h | p21    |
| Notification of Completion     | Notification of Completion | ≤0.27h           | ✓ 0.27h  | p21    |

**Domain Names**



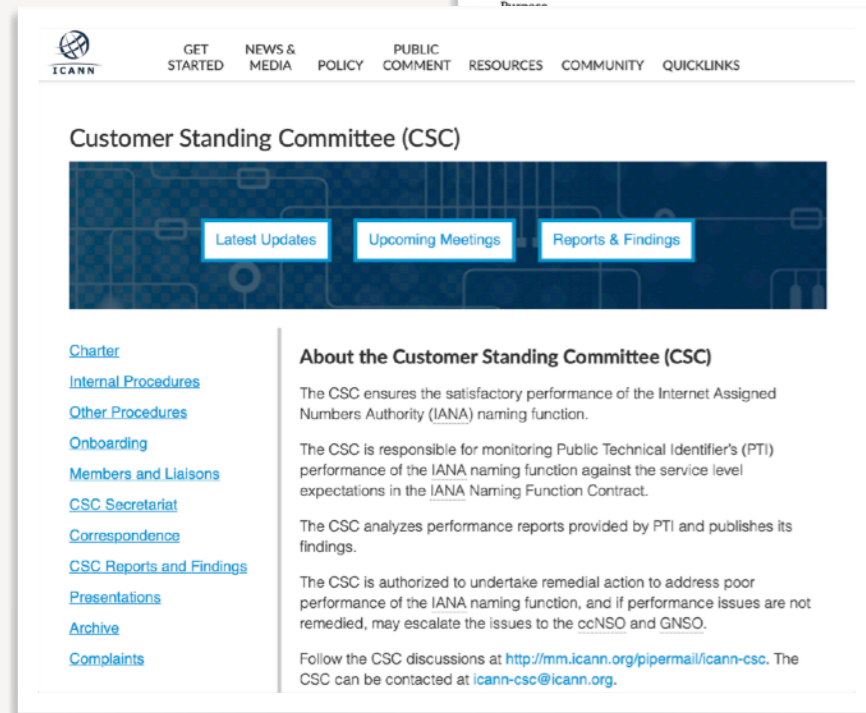
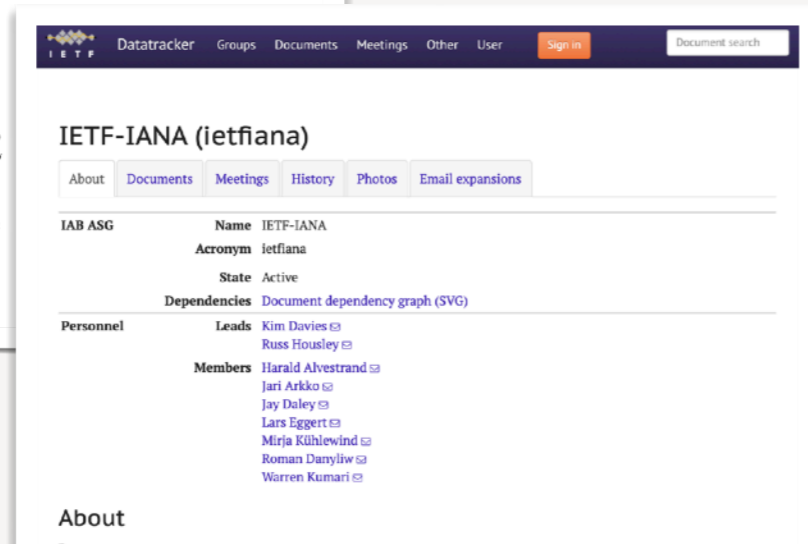
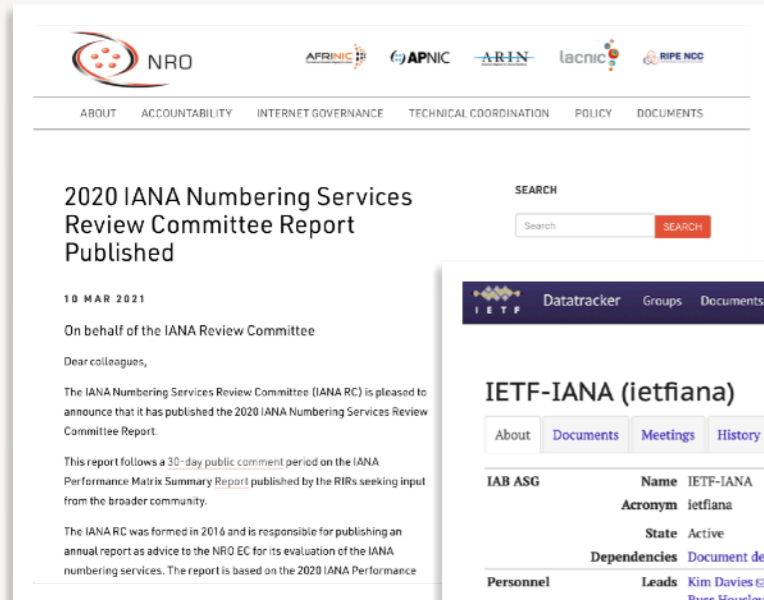
# Customer Sentiment



- Tracking to agreed service levels
- Surveys of customers after requests are completed, reporting customer satisfaction monthly
- Annual engagement survey of key stakeholders on strategic items
- Regular engagement with SO/ACs, regional meetings, and other community groups
- Direct customer interaction



# Accountability



- Oversight meetings
  - Monthly CSC meetings
  - Annual IANA Review Committee
  - Quarterly IETF-IANA leadership group
  - PTI Board meetings
  - Root Zone Evolution Review Committee
- Periodic reviews
  - Naming Function Review
  - CSC Effectiveness
- Third-party audits



# Strategy and Execution



- Dedicated PTI Strategic Plan that spells out specific priorities for the IANA functions (as a subset of the broader ICANN strategic plan)
- Annual Operating Plan and Budget Process
  - Individual consultation on PTI and IANA deliverables, rolled up into the ICANN budget as part of the process

# Where are we today?

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- Since 2016, new constructs were created to operate the IANA functions:
  - Day-to-day practical operations remained unaltered
  - Many new direct accountability mechanisms were established to give customers of the services direct oversight and empowerment
- The IANA functions continue to operate today with high levels of satisfaction
- The PTI Board seeks engagement on continued evolution of the governance model
  - Session during ICANN 73

# Thank you!

**Website**

[iana.org](https://iana.org)

**Service level reporting**

[iana.org/performance](https://iana.org/performance)

**Functional areas**

[iana.org/protocols](https://iana.org/protocols)

[iana.org/numbers](https://iana.org/numbers)

[iana.org/domains](https://iana.org/domains)

**More background**

[iana.org/about](https://iana.org/about)

**PTI website**

[pti.icann.org](https://pti.icann.org)