IANA RZMS
New SLE Reporting Metrics Mapping with Existing System Study

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Scope

- see if the 11 SLE metrics identified by the WG[1] can be applied/approximated to the current IANA combined RZMS/RT system.

- 11 Metrics are listed in appendix of this presentation

- *1. SLE Working Group Report on Service Level Expectation for IANA Root Zone Management (Post-Transition), Sept 10th 2015*

Methodology

- ICANN has provided secured access to a clone of the IANA RT4 system and RZMS database on a VM.

- ICANN staff were helpful in answering various questions.

- All statistics presented in the study were done by programming scripts querying the RZMS and RT databases. Random sampling of the tickets and spot checks were used to manually verify the output.

Considerations and Limitations

- RZMS was put in production in April 2011 (before, only RT). Study started december 18th. To avoid unstable tickets, we studied tickets from Jan 1st 2012 to Nov 30th 2015.

- Category 5 requests were not analyzed (manual analysis).

- Root server requests were not analyzed (too special).

- Only 11 metrics were analyzed, no dashboard requirements.

Considerations and Limitations

- <u>Current system does not distinguish between ccTLD and gTLD</u>. With some heuristics, one can distinguish ASCII ccTLD and gTLD, but IDN ccTLD and IDN gTLD are more complicated to distinguish.

- Many instances where multiple tickets were merged together. Creates complex situation to analyze and parse automatically. Consequence to have less reliable statistics.

Considerations and Limitations

- Metrics (identified for PTI) semantics may be interpreted in different ways, specially regarding the current process. For two metrics, ICANN staff had a different interpretation than we had of the precise meaning of the metrics. Our detailed interpretation is documented in the study.

- RZMS/RT seems simple on surface, but in fact, is pretty complicated. Moreover, email interactions are more difficult to process by scripts (ex: "I agree", "Agreed", "Please proceed", "ok", ...)

On Categories

- WG defined 5 Categories. <u>Those are not tagged in the current system</u>. With some heuristics, we were able to classify most tickets with good reliability, but many complicated cases bringing potential unreliable statistics. We decided not to use the categories for the study. Instead some metrics were sub-divided into 2-3 groups (ressembling in categories) to provide better metrics.

On Categories

- Delegation and Redelegation requests (cat 3 and 4) are complex processes with multiple external interactions. Statistics are less meaningful.

Metrics Approximations Summary

- For each metric, we provide:
  - Our detailed interpretation of the metric
  - How we did the approximation
  - Statistics of the tickets based on approximation (minimum, maximum, average, median, stddev)
  - Discussion on the findings (such as inspection of random tickets, maximum duration tickets,...)

Metrics Approximations Summary

- Unable to meaningfully approximate: RM8
- Large variation of durations: RM2, RM6, RM7,
- Large variation but with a few exceptional cases: RM3, RM9, RM10, RM11
- Not much variation: RM1, RM4, RM5.

- Variations of durations are not a measure of the reliability of the approximation. In some cases, it is the inherent property of the task (ex: manual reviews duration).

- RM# = Reporting Metric number #

Findings and Summary

- The IANA RZM/RT systems are not currently designed to report the SLE metrics requested by the community.

- Some heuristics were implemented that provided approximations for most metrics. For some metrics, the approximation is less conclusive.

- We are pretty sure that further work on more complex heuristics could improve the approximations of the metrics.

- RZM/RT systems have a good level of complexity to support all cases.

- Interactions using email creates much more difficulties for parsing and heuristics. Good examples are when contacts confirms request with a large variety of 'I accept, I agree, please proceed, …'.

Metrics Descriptions

Metrics

- RM1 : Time for ticket to be sent to requester following receipt of change request via automated submission interface
- RM2 : Time for lodgment of change request into RZMS by ICANN staff on behalf of request sent by email
- RM3 : Time to return results for technical checks following submission of request via automated submission interface
- RM4 : Time to return results for subsequent performance of technical checks during retesting due to earlier failed tests
- RM5: Time for authorization contacts to be asked to approve change request after completing previous process phase

Metrics

- RM6: Time for response to be affirmed by IANA
- RM7: Time to complete all other validations and reviews by IANA Functions Operator and release request for implementation
- RM8: Time for third-party review of request (e.g. by Board of Directors and other verification parties)
- RM9: Time to return results for performance of technical checks during Supplemental Technical Checks
- RM10: Time for the root zone changes to be published following completion of validations and reviews by IANA Functions Operator
- RM11: Time to notify request of change completion following publication of requested changes