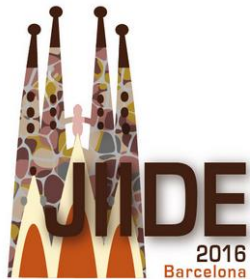


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2016-09-27/30

Evaluation of the Quality of Web Services of IGN Spain

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❖ Evaluation of the Quality of Web Services of IGN Spain

- An example of self-evaluation and transparency

❖ Introduction

❖ Quality of Service

- Performance
- Availability
- Capacity

❖ Conclusions



- ❖ Required QoS is defined in Regulations 976/2009 and 1088/2010 considering:
 - Performance
 - Availability
 - Capacity
- ❖ The *Technical Guidelines* specifies the *measure methods*
 - *What requests?*
 - *For how many time?*
 - *How often QoS shall be evaluated?*
 - ...



❖ WMS Performance

- **GetMap 470 kb IRT < 5 s**
- **Under normal conditions, no peaks (90 %)**
- *10 requests/hour, 1 layer, variable Bbox (rec.)*

❖ CSW Performance

- **Under normal conditions (90 %) IRT < 3 s**
- *10 requests/hour, DiscoveryMetadata*
- *A structure of the request (rec.)*

❖ WFS Performance

- **Under normal conditions (90 %) IRT < 30 s**
- **GetSpatialObject in a BBOX**

❖ IRT: Initial Response Time



❖ Availability

- > 99 % *annual*
- *Without maintenance time (< 120 h/year rec), with 10 req/h*

❖ Capacity

- **For WMS** 20 requests/s, during 1 min
- *10 % GetCapabilities + 90 % GetMap, 1 time/month (rec)*

- **For CSW** 30 requests/s, *during 1 min*
- *10 % GetCapabilities+ 90 % GetMetadataRequest, 1 time/month (rec.)*



❖ WMS Performance

- 20 requests/hour
- During an entire year
 - Maintenance time < 10 h/year
- GetMap 470 kb, 1 layer, same Bbox
- 9 WMS-Inspire
- Week averages between 0.15 and 1.94 s
- Only for 5 weeks: average time > 2 s
- Only 1 service during 1 week: **5.74 s** (easily excluded from the better 90 % responses)
- We have considered not ITR, but Total Response Time
- Bbox no variable



➤ 9 WMS-Inspire Performance

WMS-Inspire	URL	Average Response Time
Camino de Santiago	http://www.ign.es/wms-inspire/camino-santiago	0.25 s
Geofísica	http://www.ign.es/wms-inspire/geofisica	0.74 s
IGN-BASE	http://www.ign.es/wms-inspire/ign-base	0.80 s
MDT	http://www.ign.es/wms-inspire/mdt	0.29 s
MTN-RASTER	http://www.ign.es/wms-inspire/mapa-raster	0.35 s
Ocupacion del suelo	http://www.ign.es/wms-inspire/ocupacion-suelo	0.32 s
PNOA Inspire	http://www.ign.es/wms-inspire/pnoa-ma	0.63 s
Redes Geodésicas	http://www.ign.es/wms-inspire/redes-geodesicas	0.38 s
Unidades Administrativas	http://www.ign.es/wms-inspire/unidades-administrativas	0.41 s

❖ 11 additional WMS have Average RT < 5 s



❖ WMS Availability

- 20 request/hour
- During an entire year
 - Maintenance time < 10 h/year
- GetMap 470 kb, 1 layer, fixed Bbox
- 20 WMS
- Week availability usually between 99 y 100 %
- Taking into account peaks and maintenance stops



➤ 9 WMS-Inspire availability

WMS-Inspire	URL	Disponibility
Camino de Santiago	http://www.ign.es/wms-inspire/camino-santiago	99.73 %
Geofísica	http://www.ign.es/wms-inspire/geofisica	99.43 %
IGN-BASE	http://www.ign.es/wms-inspire/ign-base	97.85 %
MDT	http://www.ign.es/wms-inspire/mdt	99.08 %
MTN-RASTER	http://www.ign.es/wms-inspire/mapa-raster	99.91 %
Ocupacion del suelo	http://www.ign.es/wms-inspire/ocupacion-suelo	99.99 %
PNOA Inspire	http://www.ign.es/wms-inspire/pnoa-ma	99.94 %
Redes Geodésicas	http://www.ign.es/wms-inspire/redes-geodesicas	99.47 %
Unidades Administrativas	http://www.ign.es/wms-inspire/unidades-administrativas	99.76 %

- ❖ **IGN-Base is perhaps our main WMS, very complex and used**
- ❖ **5 weeks/year availability < 99 % because of solved problems**
- ❖ **13 weeks/year disp. = 100 %**

*** 11 additional WMS have availability > 99 %**



➤ 5 WMS-Inspire + 1 WMS Capacity

WMS-Inspire	Max. IRT	Min. IRT	Nº > 5
Camino de Santiago	9.889 s	0.754 s	4
Geofísica	3.433 s	0.872 s	0
MTN-RASTER	41.567 s	0.913 s	5
Redes Geodésicas	5.586 s	0.694 s	1
Unidades Administrativas	11.435 s	0.886 s	10
Cuadrículas (non Inspire)	20.089 s	0.675 s	3

- ❖ 20 requests/s during 1 min 1200 requests
- ❖ Very stressing and difficult test to pass
- ❖ It is allowed to perform it during maintenance stops, but we have made all this test on services in production



❖ What about WMTS?

SERVICE	PERFORMANCE	DISPONIBILITY
WMTS IGN-Base	0.38 s	99.75 %
WMTS Mapa ráster	0.42 s	99.79 %
WMTS Texeira	0.41 s	99.97 %
WMTS PNOA	0.45 s	99.79 %

○ Excellent solution to improve WMS QoS

- Free resources to give help/advise and support to WMS services



SERVICE	PERFORMANCE	AVAILABILITY
WFS Transportes	0.32 s	99.93 %
WFS Direcciones	1.85 s	99.75 %
WFS SIOSE	0.49 s	99.93 %
WFS NGBE	0.23 s	99.62 %

- ❖ Some WFS have a very little demand
- ❖ Performance and availability quite good



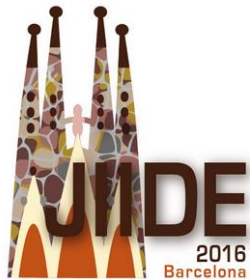
- ❖ We didn't know the problems and issues pending related to QoS until we have begun to evaluate QoS
 - External evaluation doesn't exclude internal tests (and viceversa)
- ❖ Performance and disponibility are feasible
 - WMTS is a great idea for that
- ❖ Capacity, very difficult

- ❖ It would be wise to define two levels of QoS (A and B), specially for Capacity
 - Because each use case has its own service requirements



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2016-09-27/30

Thanks a lot for your
attention!

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