Reviewing VO Data Publishers

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Overview

- Hourly monitoring of VO data providers (selected services)
- Monthly validation of VO services
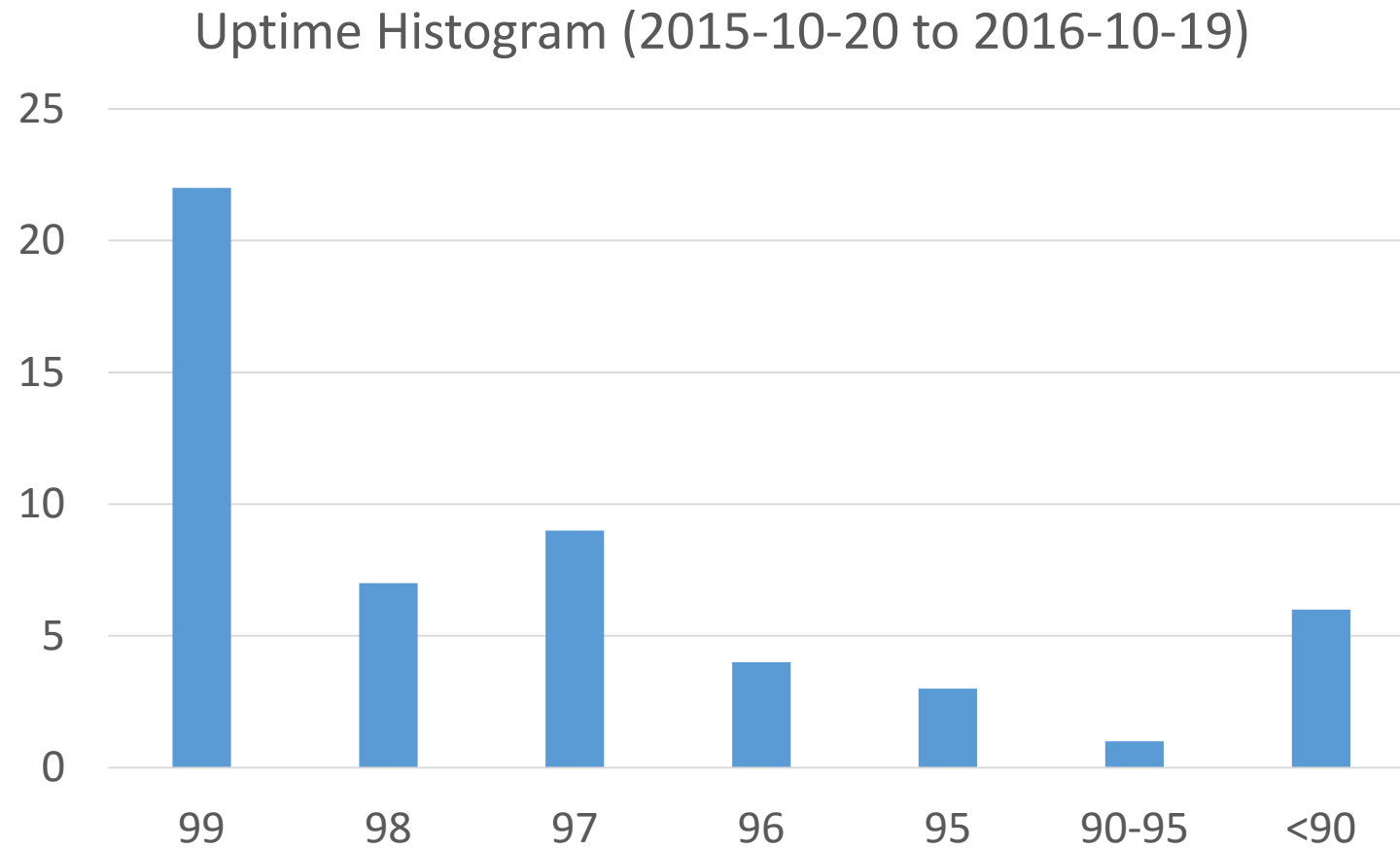- Biannual (?) review of VO Publishers

- Activities supported by NASA/NAVO

Uptime Percentages for VO Data Providers

Site	% up last year	% up prev. year	Site	% up last year	% up prev. year	Site	% up last year	% up prev. year
3CR Snapshots	99.1	97.4	Helio VO	95.1	98.9	Obs Lyon	97.6	95.8
ARCHES	96.3	-	Helio VO Mirror	81.2	99.8	ROE Astrogrid	87.6	97
ARVO	97.6	-	IACVO	97	100	SDSS	98.5	92.5
ASDC	99.9	98.8	IDOC	28.8	-	STECF	95	99.6
Astronet	84.9	77.3	INAF	97.5	98.6	SVO	99.1	99.1
BSDC	98.5	78.5	IRSA *	99.7	99.5	SkyBot	94.9	93.7
CADC	97	95.9	IVOA	99.9	99.8	StarDB	99.5	98.8
CDPP	98.5	98.4	IVOA RofR	99.4	98.2	Swinburne	99.9	99.1
CDS	99.2	98.8	JVO	99.5	99.3	TBL Narval	94.9	99.1
CSIRO	98.9	99.2	MAGIC	99.7	95.8	USNO	72.4	87.5
China VO	96.1	90.3	MAST *	99.6	99.7	VAO Closeout	99.9	99.7
DAME	96	-	MAST NAVO Registry	99.7	99.8	VO Paris	98.3	99.5
ESA VO	98.4	98.8	NAO	97.4	97	XAOVO	99.3	-
ESO ORG	99.2	99.6	NCI	97.3	91.7	XCAT	99.1	98.3
GAVO	98.5	87.4	NED *	99.8	99.5			
GRAAL-VO	97.8	98.8	NEXSCI	99.9	99.8			
HEASARC *	97.8	98.2	NOAO	92.3	99.1			
HESIOD	97.7	96.7	NOVA	89.4	91.8			
Harvard ADS *	96.6	96.2	NRAO	99.9	-			
Harvard CXC *	99.5	99.8	OVGSO	95.1	98			

21 blue (improving)

15 green (>99% in all years)

16 red (deteriorating)

4 with <99% in last year only.

http://heasarc.gsfc.nasa.gov/vo/monitor/stats.html

Number of sites versus reliability

Uptime Histogram (2015-10-20 to 2016-10-19)
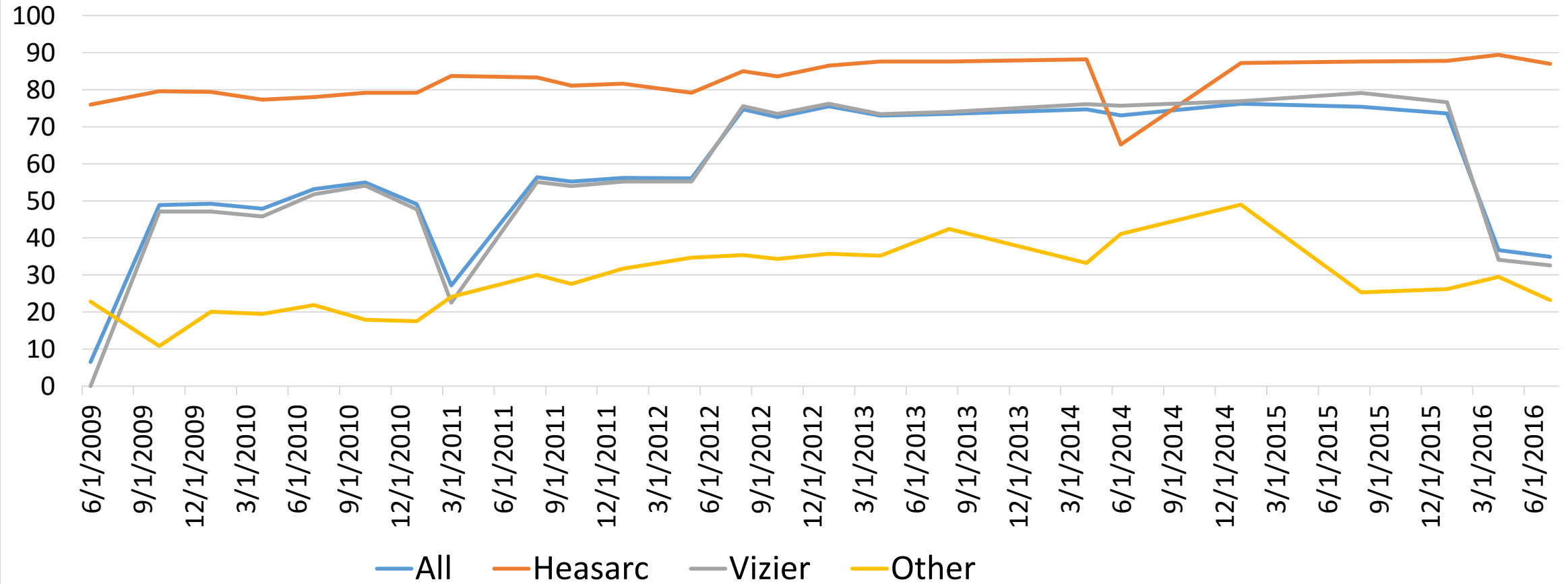
Uptime overview

- About half of sites reaching 2 nines.
  - 99% means down 3 ½ days down per year.
- Over 90% of sites have >95% reliability
  - 95% is equivalent to being down one hour/day

- Distribution of down times affects apparent reliability.

NAVO Validation Service

- Mostly don't write validators:
  - NCSA Cone and SIAV1 (local tweaks)
  - TAPLint
  - VOParis SSA and SIAV2
- Supplement S[IS]A checks with data download request

- http://heasarc.gsfc.nasa.gov/vo/validation
  - Individual services
  - Service types
  - Institutions

Historical Results

Fraction of services passing validation

What happens?

- Sites generally start out with very low numbers (including HEASARC before the start of this chart).
- Once they are informed of failures most substantially improve often in discrete phases.
- Bugs may cause one or more tests (typically in edge cases) to fail and bring down existing services.
- New centers may come online, or existing centers may release new suites of services, bringing down overall numbers (see first point!)

Sites should validate:
- On initial deployment of services
- After any changes
- Regular checks

But since providers don't always do it…

HEASARC Review of All VO Data Providers

- Detailed summary of all issues seen at one site created
  - Problems
  - Suggested solutions
- Emailed to all centers
  - Did not send out to centers with no problems – should we give gold stars at IVOA?
- About 20-25% responded usually indicating that they would work on problems.
- Sometimes catches issues in validators (e.g., too strict TAPlint constraint)

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Center: HEASARC

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+ Validator Error Summary +
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(Cone)

A.Values in the ID_MAIN column must be unique.

B.The TABLE must contain exactly one FIELD with ucd='ID_MAIN'.

C.The ID_MAIN column must have datatype='char'.

D.The ID_MAIN column must have a string-appropriate arraysize (recommend '*').

E.The POS_EQ_DEC_MAIN column must have datatype='double'.

F.The POS_EQ_RA_MAIN column must have datatype='double'.

G.The TABLE must contain exactly one FIELD with ucd='POS_EQ_RA_MAIN'.

H.The TABLE must contain exactly one FIELD with ucd='POS_EQ_DEC_MAIN'.

I.The RESOURCE element must contain exactly one TABLE.

(SIAP)

A. Could not find image url

B. Fits Test Exception

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All problems seen on any service at site.

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+Explanations and Mitigations +
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(Cone)
A. Your service:

http://heasarc.gsfc.nasa.gov/cgi-bin/vo/cone/coneGet.pl?table=a2lcscan&RA=136.9&DEC=-82&SR=1.0

...returns a VOTable where the ID Main values are not unique.

E.g.
<TD>1H0922-810</TD>
<TD>1H0922-810</TD>

The values in the ID main column must be unique.

B.-D. Your service:

http://heasarc.gsfc.nasa.gov/cgi-bin/vo/cone/coneGet.pl?table=isolog&RA=136.9&DEC=-85&SR=.06

...returns a VOTable with 2 ID_MAIN columns.

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Explanations,
Examples and
Suggested Solutions

Is this useful?

- How frequently?
- Are we providing sufficient information?
  - Sufficient explanation of error?
  - Adequate examples?
- Are we providing too much information?
- Should we follow up with institutions?
  - ~75% did not acknowledge receipt.
  - Did we send it to right person?
  - How do we encourage feedback?
- Data from other validation services?
- Should we make reports public?