



# ARIN Fee Change Recommendation

# ARIN Fee Change Recommendation

- Face-to-face discussion of Fee Change options conducted in October during the ARIN 36 meeting in Montreal (see background slides – attached)
- Widespread support for adjusting categories with more IPv6 space resulting in lower categories/fees for given IPv6 holdings
- Support for adding higher registration service tier categories to offset reduction in revenue from changes in IPv6 sizes
- Mixed comments regarding changes to transfer fees

Proposed recommendation to ARIN Board –

- Adjust categories favorably for IPv6, including new XXX-small category
- Allow end-users to pay per ISP registration plan if they desire (i.e. by size category); also becoming members in process
- Add both XXXX-Large, and XXXXX-Large size categories
- Leave transfer fees as-is (for time being)

# Recommendation – Final Result

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Change each IPv6 category to accommodate IPv6 total holdings 16 times greater than current categories

- *Financial impact: - \$980K/year USD*

*Add an XXX-Large category offsetting IPv6 category changes*

- *Financial impact: + \$1000K/year USD*

*Add XXXX- and XXXXX-Large categories to recover more from those who benefit more from the registry*

- *Financial impact: + \$440K/year USD*

Net result: more uniform fee schedule, provides equity between end-users and ISP fees, and results in overall +\$460K/year additional revenue.

# **Background**

**(ARIN 36 Montreal Fee Discussion)**



# ARIN Fee Discussion

John Curran



## Situation

- Fee Structure Review Panel completed and discharged
  - **Final Fee Structure Review Report released September 2014**  
[https://www.arin.net/participate/acsp/community\\_consult/fee-structure-review.pdf](https://www.arin.net/participate/acsp/community_consult/fee-structure-review.pdf)  
*(contains seven alternative directions for ARIN's long-term fee structure)*
- **Face-to-face discussion of Fee Structure review report held during October 2014 Members Meeting in Baltimore**
- Online Community consultation held
  - **Opened 10 October 2014, closed on 9 December 2014.**
  - **51 posts by 18 people [arin-consult 27 posts and arin-discuss 24 post]**
- Two major consensus themes from discussion and consultation
  - **IPv4 Fairness: generally expressed that IPv4 fee categories should be lower for small address holders and larger for larger IPv4 address holders**
  - **IPv6 Support: we should encourage deployment with minimal IPv6 fees and avoid disincentives resulting in smaller IPv6 allocations or fee increases**
- No consensus supporting more innovative proposals (e.g. No IPv6 fees, flat fee per member or transition, algorithmic, etc.)



- ARIN Staff worked with ARIN Finance Committee (ARIN FinCom) to generate a specific proposal to address consensus points (IPv4 Fairness, IPv6 Support)
- We modeled (based on 2015 customer counts and resource distribution) the following 4 scenarios:
  1. ARIN's Present Fee Schedule
  2. Fee schedule with all IPv6 categories 4 bits larger (IPv6 shift)
  3. IPv6 category shift plus an new XXX-Large category
  4. IPv6 shift, new XXX-Large and a new XXX-Small category
  5. IPv6 shift, new XXX-Large, new XXX-Small category, and extension to include XXXX-Large and XXXX-Large



# ARIN's Present Fee Model

IPv4 /24 NETS RANGE - TOP	IPv4 /24 NETS RANGE - BOTTOM	Total Allocated IPv4 Number Resources	Size Ordinal	IPv4 Size Category
4	0	/22 or Smaller	1	XX-Small
16	5	Larger than /22, up to and including /20	2	X-Small
64	17	Larger than /20, up to and including /18	3	Small
256	65	Larger than /18, up to and including /16	4	Medium
1024	257	Larger than /16, up to and including /14	5	Large
4096	1025	Larger than /14, up to and including /12	6	X-Large
16777216	4097	Larger than /12	7	XX-Large

IPv6 /48 NETS RANGE - TOP	IPv6 /48 NETS RANGE - BOTTOM	Total Allocated IPv6 Number Resources	Size Ordinal	IPv4 Size Category
0	0	0	0	None
256	0	/40 or Smaller	1	XX-Small
4096	257	Larger than /40, up to and including /36	2	X-Small
65536	4097	Larger than /36, up to and including /32	3	Small
1048576	65537	Larger than /32, up to and including /28	4	Medium
16777216	1048577	Larger than /28, up to and including /24	5	Large
268435456	16777217	Larger than /24, up to and including /20	6	X-Large
281474976710656	268435457	Larger than /20	7	XX-Large

Final Size Ordinal	Final Size Category	Annual Recurring Services Fee	ISP Counts
1	XX-Small	\$500	649
2	X-Small	\$1,000	1280
3	Small	\$2,000	2088
4	Medium	\$4,000	693
5	Large	\$8,000	259
6	X-Large	\$16,000	93
7	XX-Large	\$32,000	75

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\$150 Annual Fee Maximum for LRSA Contracted Parties

	TOTAL	Org Count	Average
ISP Fees	\$13,972,950	5137	\$2,720
End-User Fees	\$1,529,850	6530	\$234
<b>Total ISP + EU Fees</b>	<b>\$15,502,800</b>	<b>11667</b>	<b>\$1,329</b>
ASN Fees	\$860,050	8237	\$104
<b>TOTAL All Annual Fees</b>	<b>\$16,362,850</b>	<b>19904</b>	<b>\$822</b>

## ARIN's Present (2015) Fee Model

This model is ARIN's present fee schedule, with the annual fee maximum set to \$150 (for 2016)



## IPv6 Categories Shifted

- Change each IPv6 category to accommodate IPv6 total holdings 16 times greater than current categories

*Example – “XX-Small” now is up to /36, not /40 total IPv6 address holdings*

- Widely supported during the fee structure consultation
- Financial impact: \$16.362M -> \$15.382M annual revenue change (- \$980K/year USD)



# IPv6 Categories Shifted

IPv4 /24 NETS RANGE - TOP	IPv4 /24 NETS RANGE - BOTTOM	Total Allocated IPv4 Number Resources	Size Ordinal	IPv4 Size Category
4	0	/22 or Smaller	1	XX-Small
16	5	Larger than /22, up to and including /20	2	X-Small
64	17	Larger than /20, up to and including /18	3	Small
256	65	Larger than /18, up to and including /16	4	Medium
1024	257	Larger than /16, up to and including /14	5	Large
4096	1025	Larger than /14, up to and including /12	6	X-Large
16777216	4097	Larger than /12	7	XX-Large

IPv6 /48 NETS RANGE - TOP	IPv6 /48 NETS RANGE - BOTTOM	Total Allocated IPv6 Number Resources	Size Ordinal	IPv4 Size Category
0	0	0	0	None
4096	0	/36 or Smaller	1	XX-Small
65536	4097	Larger than /36, up to and including /32	2	X-Small
1048576	65537	Larger than /32, up to and including /28	3	Small
16777216	1048577	Larger than /28, up to and including /24	4	Medium
268435456	16777217	Larger than /24, up to and including /20	5	Large
4294967296	268435457	Larger than /20, up to and including /16	6	X-Large
281474976710656	4294967297	Larger than /16	7	XX-Large

Final Size Ordinal	Final Size Category	Annual Recurring Services Fee	ISP Counts
1	XX-Small	\$500	688
2	X-Small	\$1,000	2064
3	Small	\$2,000	1294
4	Medium	\$4,000	670
5	Large	\$8,000	256
6	X-Large	\$16,000	92
7	XX-Large	\$32,000	73

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\$150 Annual Fee Maximum for LRSA Contracted Parties

	TOTAL	Org Count	Average
ISP Fees	\$12,992,450	5137	\$2,529
End-User Fees	\$1,529,850	6530	\$234
<b>Total ISP + EU Fees</b>	<b>\$14,522,300</b>	<b>11667</b>	<b>\$1,245</b>
ASN Fees	\$860,050	8237	\$104
<b>TOTAL All Annual Fees</b>	<b>\$15,382,350</b>	<b>19904</b>	<b>\$773</b>

## IPv6 Categories Shifted

This model is has the size of each IPv6 category shifted larger by 4 bits, i.e. XX-Small (\$500/yr) is an ISP with /36 IPv6 and up to /22 IPv6, and a X-Small (\$1000/yr) is an ISP with up to /32 IPv6 and up to /20 IPv4. This addresses the concern about ISPs adding IPv6 and moving up in category.

## IPv6 Categories Shifted & New XXX-Large

- In addition to IPv6-shift, add a single XXX-Large category to recover more from those who benefit more from the registry
  - IPv4 holdings larger than /12 would pay \$64,000 (up from \$32,000 XX-Large at present)*
  - 36 Organizations affected*
- Widely supported during the fee structure consultation
- Financial impact: \$15.382M -> \$16.402 annual revenue change (+ \$1M/year USD)
- *The combination of IPv6 shift and new XXX-Large fee schedule changes would be revenue neutral*



# IPv6 Categories Shifted & New XXX-Large

IPv4 /24 NETS RANGE - TOP	IPv4 /24 NETS RANGE - BOTTOM	Total Allocated IPv4 Number Resources	Size Ordinal	IPv4 Size Category
4	0	/22 or Smaller	1	XX-Small
16	5	Larger than /22, up to and including /20	2	X-Small
64	17	Larger than /20, up to and including /18	3	Small
256	65	Larger than /18, up to and including /16	4	Medium
1024	257	Larger than /16, up to and including /14	5	Large
4096	1025	Larger than /14, up to and including /12	6	X-Large
16384	4097	Larger than /14, up to and including /12	7	XX-Large
16777216	16385	Larger than /12	8	XXX-Large

	TOTAL	Org Count	Average
ISP Fees	\$14,016,450	5137	\$2,729
End-User Fees	\$1,529,850	6530	\$234
<b>Total ISP + EU Fees</b>	<b>\$15,546,300</b>	<b>11667</b>	<b>\$1,333</b>
ASN Fees	\$860,050	8237	\$104
<b>TOTAL All Annual Fees</b>	<b>\$16,406,350</b>	<b>19904</b>	<b>\$824</b>

## IPv6 Categories Shifted & New XXX-Large

IPv6 /48 NETS RANGE - TOP	IPv6 /48 NETS RANGE - BOTTOM	Total Allocated IPv6 Number Resources	Size Ordinal	IPv6 Size Category
0	0	0	0	None
4096	0	/36 or Smaller	1	XX-Small
65536	4097	Larger than /36, up to and including /32	2	X-Small
1048576	65537	Larger than /32, up to and including /28	3	Small
16777216	1048577	Larger than /28, up to and including /24	4	Medium
268435456	16777217	Larger than /24, up to and including /20	5	Large
4294967296	268435457	Larger than /20, up to and including /16	6	X-Large
68719476736	4294967297	Larger than /16, up to and including /12	7	XX-Large
281474976710656	68719476737	Larger than /12	8	XXX-Large

This model is has the size of each IPv4 category shifted larger by 4 bits and a new XXX category

Final Size Ordinal	Final Size Category	Annual Recurring Services Fee	ISP Counts
1	XX-Small	\$500	688
2	X-Small	\$1,000	2064
3	Small	\$2,000	1294
4	Medium	\$4,000	670
5	Large	\$8,000	256
6	X-Large	\$16,000	92
7	XX-Large	\$32,000	37
8	XXX-Large	\$64,000	36

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\$150 Annual Fee Maximum for LRSA Contracted Parties

## IPv6 Shift, new XXX-Large, new xxx-small

- In addition to IPv6-shift and addition of XXX-Large, better serve smaller end-users and legacy holders with no more than /24 IPv4 and /40 IPv6 by creation of a XXX-small category (\$250/yr fee)
- Allow end-users and legacy holders to become ARIN Members and pay (per ISP fee schedule) based on their total holdings. As Members, would also gain vote, no ASN maintenance fees, etc.
- Moves us towards a uniform fee schedule for end-users and ISPs over time (particularly once IPv4 resources are no longer in common use)
- Nominal revenue impact expected



# IPv6 Shift, new top category, new xxx-small

IPv4 /24 NETS RANGE - TOP	IPv4 /24 NETS RANGE - BOTTOM	Total Allocated IPv4 Number Resources	Size Ordinal	IPv4 Size Category
0	0	0	0	None
1	1	/24 or Smaller	1	XXX-Small
4	2	Larger than /24, up to and including /22	2	XX-Small
16	5	Larger than /22, up to and including /20	3	X-Small
64	17	Larger than /20, up to and including /18	4	Small
256	65	Larger than /18, up to and including /16	5	Medium
1024	257	Larger than /16, up to and including /14	6	Large
4096	1025	Larger than /14, up to and including /12	7	X-Large
16384	4097	Larger than /12, up to and including /10	8	XX-Large
16777216	16385	Larger than /10	9	XXX-Large

IPv6 /48 NETS RANGE - TOP	IPv6 /48 NETS RANGE - BOTTOM	Total Allocated IPv6 Number Resources	Size Ordinal	IPv4 Size Category
0	0	0	0	None
256	1	/40 or Smaller	1	XXX-Small
4096	257	Larger than /40, up to and including /36	2	XX-Small
65536	4097	Larger than /36, up to and including /32	3	X-Small
1048576	65537	Larger than /32, up to and including /28	4	Small
16777216	1048577	Larger than /28, up to and including /24	5	Medium
268435456	16777217	Larger than /24, up to and including /20	6	Large
4294967296	268435457	Larger than /20, up to and including /16	7	X-Large
68719476736	4294967297	Larger than /16, up to and including /12	8	XX-Large
281474976710656	68719476737	Larger than /12	9	XXX-Large

Final Size Ordinal	Final Size Category	Annual Recurring Services Fee	ISP Counts
1	XXX-Small	\$250	32
2	XX-Small	\$500	656
3	X-Small	\$1,000	2064
4	Small	\$2,000	1294
5	Medium	\$4,000	670
6	Large	\$8,000	256
7	X-Large	\$16,000	92
8	XX-Large	\$32,000	37
9	XXX-Large	\$64,000	36

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\$150 Annual Fee Maximum for LRSA Contracted Parties

	TOTAL	Org Count	Average
ISP Fees	\$14,009,200	5137	\$2,727
End-User Fees	\$1,529,850	6530	\$234
<b>Total ISP + EU Fees</b>	<b>\$15,539,050</b>	<b>11667</b>	<b>\$1,332</b>
ASN Fees	\$860,050	8237	\$104
<b>TOTAL All Annual Fees</b>	<b>\$16,399,100</b>	<b>19904</b>	<b>\$824</b>

## IPv6 Categories Shifted, new top category, new xxx-small

This model has the size of each IPv4 category shifted larger by 4 bits, adds a new top XXX-Large category, and new xxx-small. Note that this would provide an option for very small orgs presently paying maintenance fees (End User) to become ARIN Members with a cost-effective registration services plan at the XXX-Small tier.



## IPv6 Shift, new xxx/xxxx/xxxx-large & xxx-small

- In addition to IPv6-shift and addition of XXX-Large, add XXXX- and XXXXX-Large categories to recover more from those who benefit more from the registry
  - IPv4 holdings larger than /8 (XXXX-Large) would pay \$128,000 (up from \$64,000 XXX-Large and \$32,000 presently)*
  - 9 Organizations affected (2 w/LRSA fee cap)*
  - No XXXXX-Large organizations (holdings larger than /4)*
- Financial impact: \$16.40M ->\$16.84M annual revenue change (+ \$440K/year USD)
- Makes fee schedule uniform



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# IPv6 Shift, new xxx/xxxx/xxxx-large & xxx-small

IPv4 /24 NETS RANGE - TOP	IPv4 /24 NETS RANGE - BOTTOM	Total Allocated IPv4 Number Resources	Size Ordinal	IPv4 Size Category
0	0	0	0	None
1	1	/24 or Smaller	1	XXX-Small
4	2	Larger than /24, up to and including /22	2	XX-Small
16	5	Larger than /22, up to and including /20	3	X-Small
64	17	Larger than /20, up to and including /18	4	Small
256	65	Larger than /18, up to and including /16	5	Medium
1024	257	Larger than /16, up to and including /14	6	Large
4096	1025	Larger than /14, up to and including /12	7	X-Large
16384	4097	Larger than /12, up to and including /10	8	XX-Large
65536	16385	Larger than /10, up to and including /8	9	XXX-Large
262144	65537	Larger than /8, up to and including /6	10	XXXX-Large
16777216	262145	Larger than /6	11	XXXXX-Large

IPv6 /48 NETS RANGE - TOP	IPv6 /48 NETS RANGE - BOTTOM	Total Allocated IPv6 Number Resources	Size Ordinal	IPv4 Size Category
0	0	0	0	None
256	1	/40 or Smaller	1	XXX-Small
4096	257	Larger than /40, up to and including /36	2	XX-Small
65536	4097	Larger than /36, up to and including /32	3	X-Small
1048576	65537	Larger than /32, up to and including /28	4	Small
16777216	1048577	Larger than /28, up to and including /24	5	Medium
268435456	16777217	Larger than /24, up to and including /20	6	Large
4294967296	268435457	Larger than /20, up to and including /16	7	X-Large
68719476736	4294967297	Larger than /16, up to and including /12	8	XX-Large
1099511627776	68719476737	Larger than /12, up to and including /8	9	XXX-Large
17592186044416	1099511627777	Larger than /8, up to and including /4	10	XXXX-Large
281474976710656	17592186044417	Larger than /4	11	XXXXX-Large

Final Size Ordinal	Final Size Category	Annual Recurring Services Fee	ISP Counts
1	XXX-Small	\$250	32
2	XX-Small	\$500	656
3	X-Small	\$1,000	2064
4	Small	\$2,000	1294
5	Medium	\$4,000	670
6	Large	\$8,000	256
7	X-Large	\$16,000	92
8	XX-Large	\$32,000	37
9	XXX-Large	\$64,000	27
10	XXXX-Large	\$128,000	9
11	XXXXX-Large	\$256,000	0

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	TOTAL	Org Count	Average
ISP Fees	\$14,457,200	5137	\$2,814
End-User Fees	\$1,529,850	6530	\$234
<b>Total ISP + EU Fees</b>	<b>\$15,987,050</b>	<b>11667</b>	<b>\$1,370</b>
ASN Fees	\$860,050	8237	\$104
<b>TOTAL All Annual Fees</b>	<b>\$16,847,100</b>	<b>19904</b>	<b>\$846</b>

IPv6 Categories Shifted, new XXX/XXXX/XXXXX, new xxx-small

This model has the size of each IPv6 category shifted larger by 4 bits, adds a new top XXX/XXXX/XXXX-Large category, and new xxx-small.





## Additional Change – Transfer Fees

- Several transfer facilitators have asked if they can pay the fees associated with transfers in advance, rather than after approval
- We also have more transfers abandoned after initiation during processing, and do not recover for the effort associated with such requests.

Intend to move payment of transfer request processing fee to beginning of process and payable regardless of outcome (approved or not)



## Community Feedback Needed

1. Should we have an XXX-Small category and allow end-users to pay based on total holdings if they so choose?
2. Should we add XXXX- and XXXXX-Large categories for consistency?



# Discussion?