



Public Policy Meeting Agenda

Day 1 - April 3, 2000

8:30 Doors Open - Continental Breakfast

9:00 Meeting Called to Order

9:05 Welcome

9:10 Review Agenda

9:15 Announcements

9:30 ARIN Operational Report

- Registration Services - Richard Jimmerson
- Engineering - Shane Kerr

10:00 ASO AC Report - Cathy Wittbrodt

10:15 ASO AC Member Election Process Discussion - Barbara Roseman

10:30 ICANN Report - Ken Fockler

- Discussion of ICANN/USG Contract re IANA Services - Kim Hubbard
- Request for Reconsideration sent to ICANN
- Delegation of Addresses by ICANN Proposal
- Ad Hoc Group Report - Raimundo Beca

12:00-1:30 Lunch

Public Policy Meeting Agenda

Day 1 - April 3, 2000 (continued)

12:00-1:30 Lunch

1:30 Policy Working Group (plenary)

- Web-hosting Allocations (HTTP 1.1 Use) - Richard Jimmerson
- Reassignment Information on Residential Users of DSL - Richard Jimmerson
- IPv6 Document Status - Michael O'Neill

3:15-3:30 Break

3:30 Policy Working Group (continued) (plenary)

- Micro-allocations - Cathy Wittbrodt

5:00 Adjourn

8:00 Foosball Tournament



Public Policy Meeting Agenda

Day 2 - April 4, 2000

8:30 Doors Open - Continental Breakfast

9:00 Announcements

9:10 Policy Working Group (continued) (plenary)

- Increasing Maximum Allocation - Cathy Clements
- Criteria for Establishing RIRs in Emerging Regions - Kim Hubbard

10:30 Database Working Group (plenary)

- Database Separation - Shane Kerr
- Maintenance Fees for Legacy Network Records
- RWHOIS

12:00-1:30 Lunch



Public Policy Meeting Agenda

Day 2 - April 4, 2000 (continued)

12:00-1:30 Lunch

1:30 Database Working Group (continued) (plenary)

Database Redesign - Shane Kerr

3:00-3:15 Break

3:15 Security/Authorization - Shane Kerr

3:45 APNIC/RIPE NCC Operational Reports -
Gerard Ross / Joao Luis Silva Damas

4:15 AfriNIC/LACNIC Status - German Valdez

4:30 ARIN Outreach - Kim Hubbard

5:00 Adjourn

6:00 Bus departs hotel for dinner/murder mystery at The Ranche



Registration Services Update

April 2000

- RSG currently staffed with 7 people
 - 4 registration services analysts
 - 2 senior registration services analysts
 - 1 registration services manager
- ARIN is currently seeking another analyst to bring registration services back to the normal staffing level of 8.

Registration Services Daily Activities

- Review Requests for:
 - IPv4 address space
 - IPv6 address space
 - AS numbers
 - Registration transfer
- Maintain WHOIS by Processing:
 - SWIP templates
 - Modification templates
- Maintain ARIN Routing Registry
- Maintain ARIN Help Desk

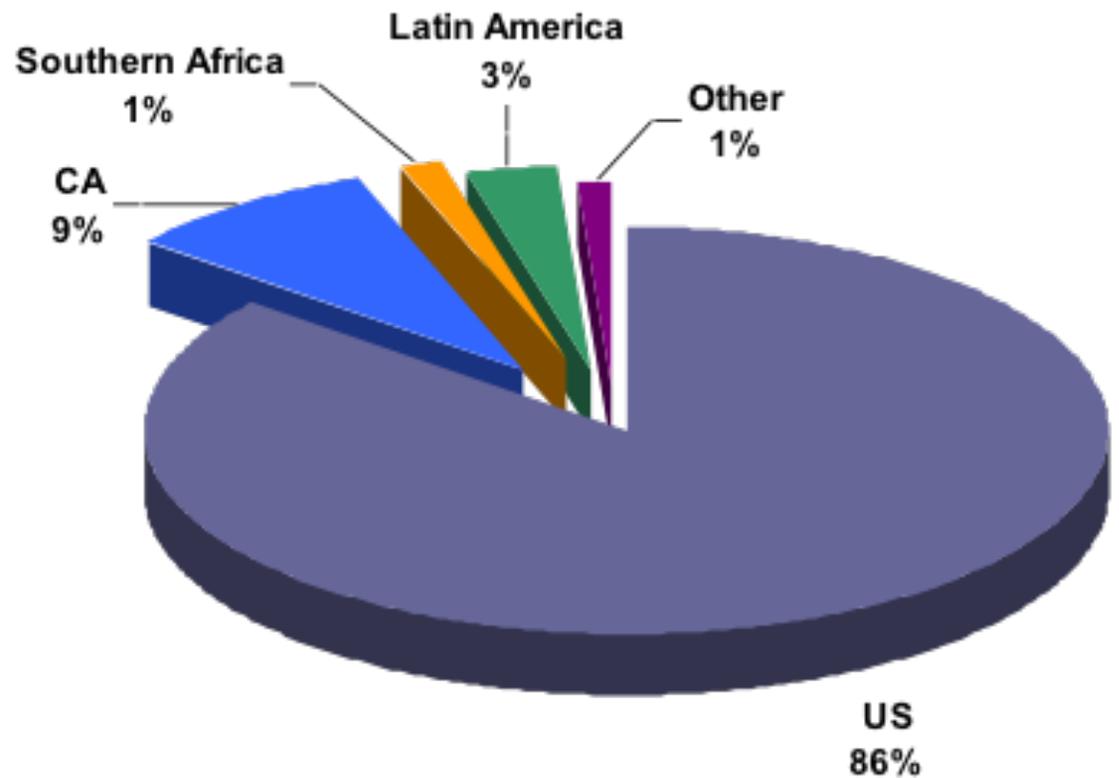


Statistics

April 2000

Members

Area	Members
US	859
CA	87
Southern Africa	14
Latin America	31
Other	10
Total	1001

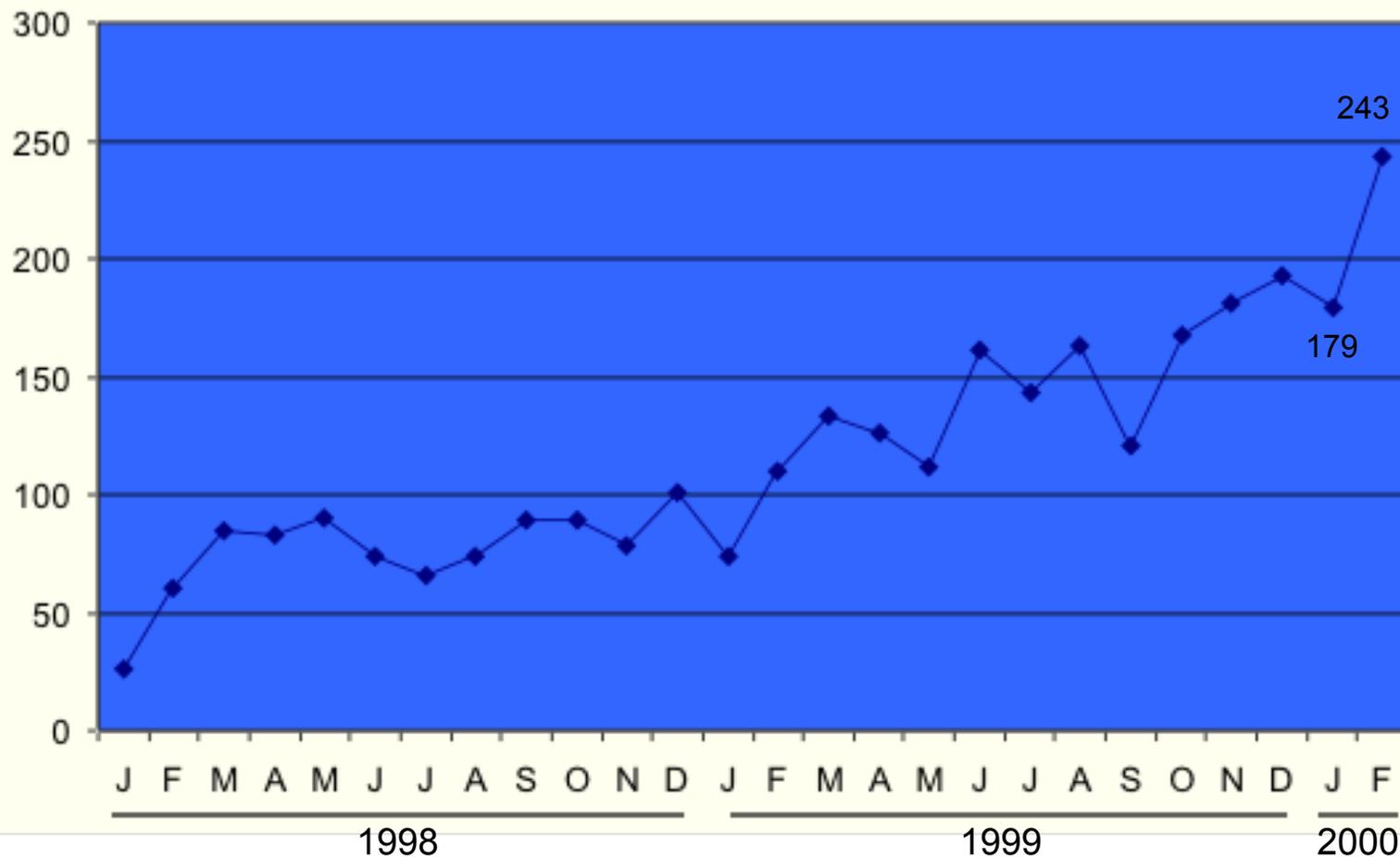


Subscription Holders by Registration Category

Registration Category	Subscribers
Small	542
Medium	316
Large	50
X-Large	16
v6 Small	3

AS Number Statistics

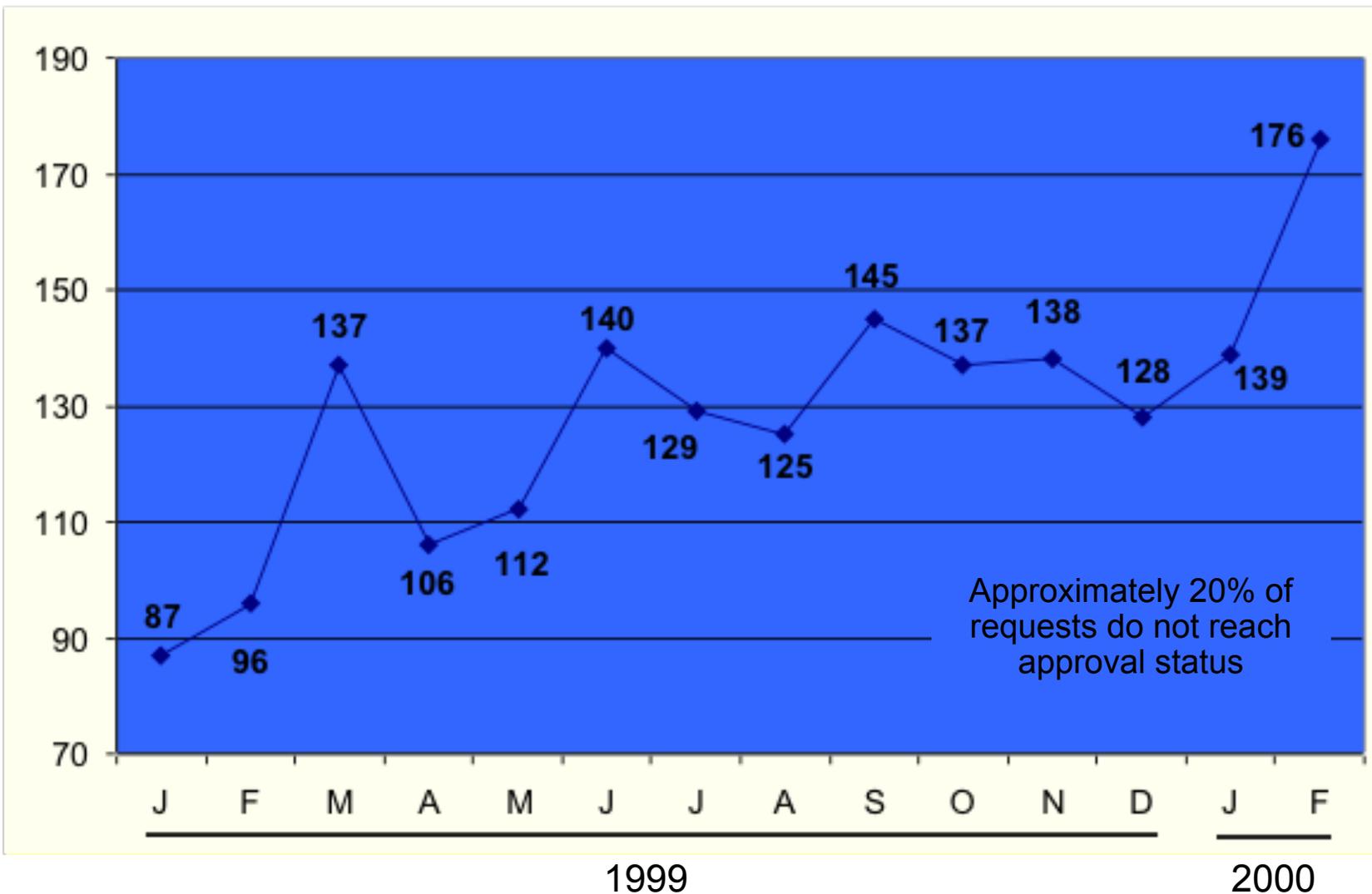
AS Numbers Issued by Month



	1998	1999
January	26	74
February	60	110
March	85	133
April	83	126
May	90	112
June	74	161
July	66	143
August	74	163
September	89	121
October	89	168
November	78	181
December	101	193
Total	915	1,685

84% Increase

ISP Requests for IPv4



1999 Total
1,693

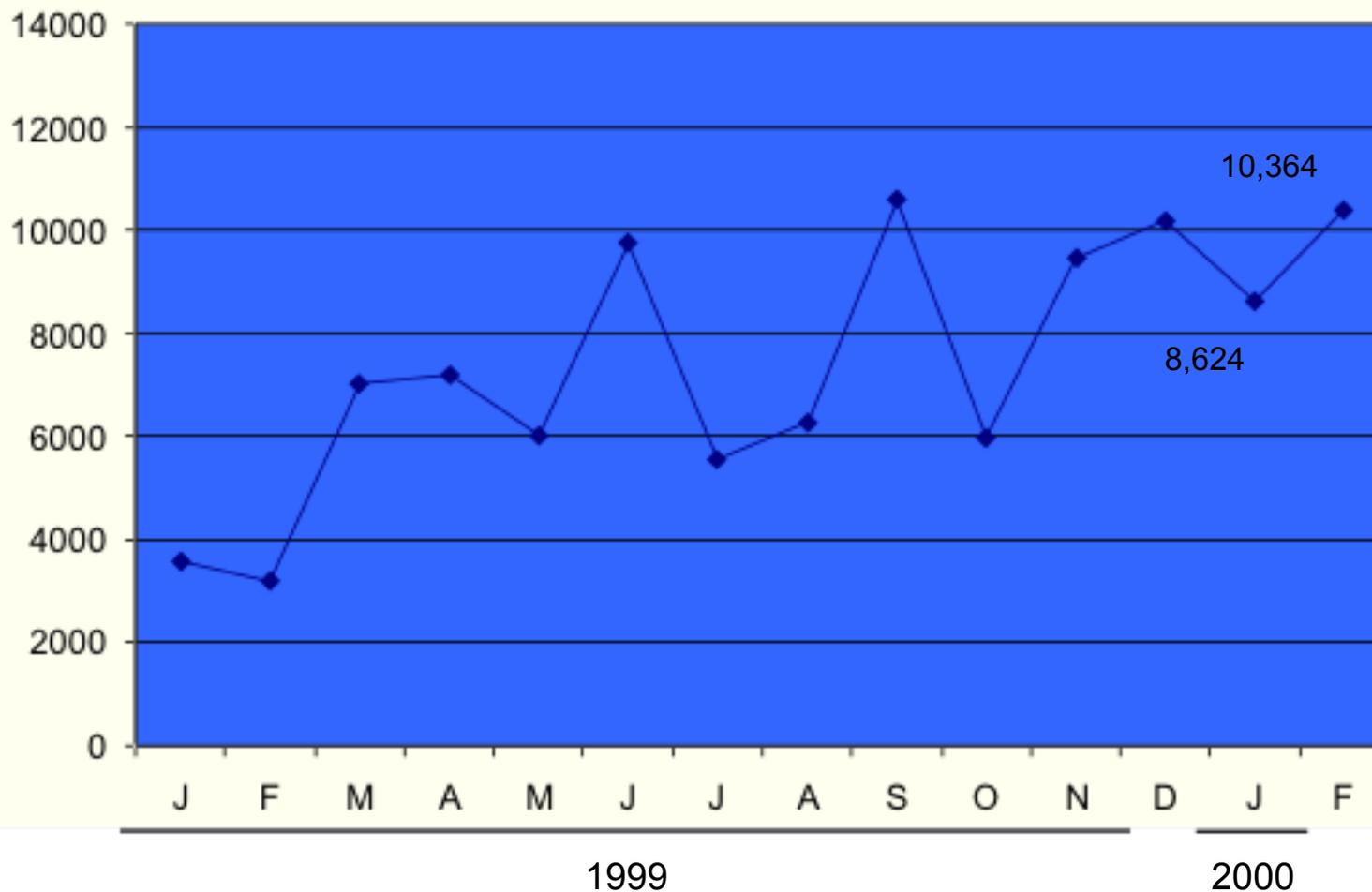
1998 Total
900

88% Increase

Approximately 20% of requests do not reach approval status

IPv4 Space Issued

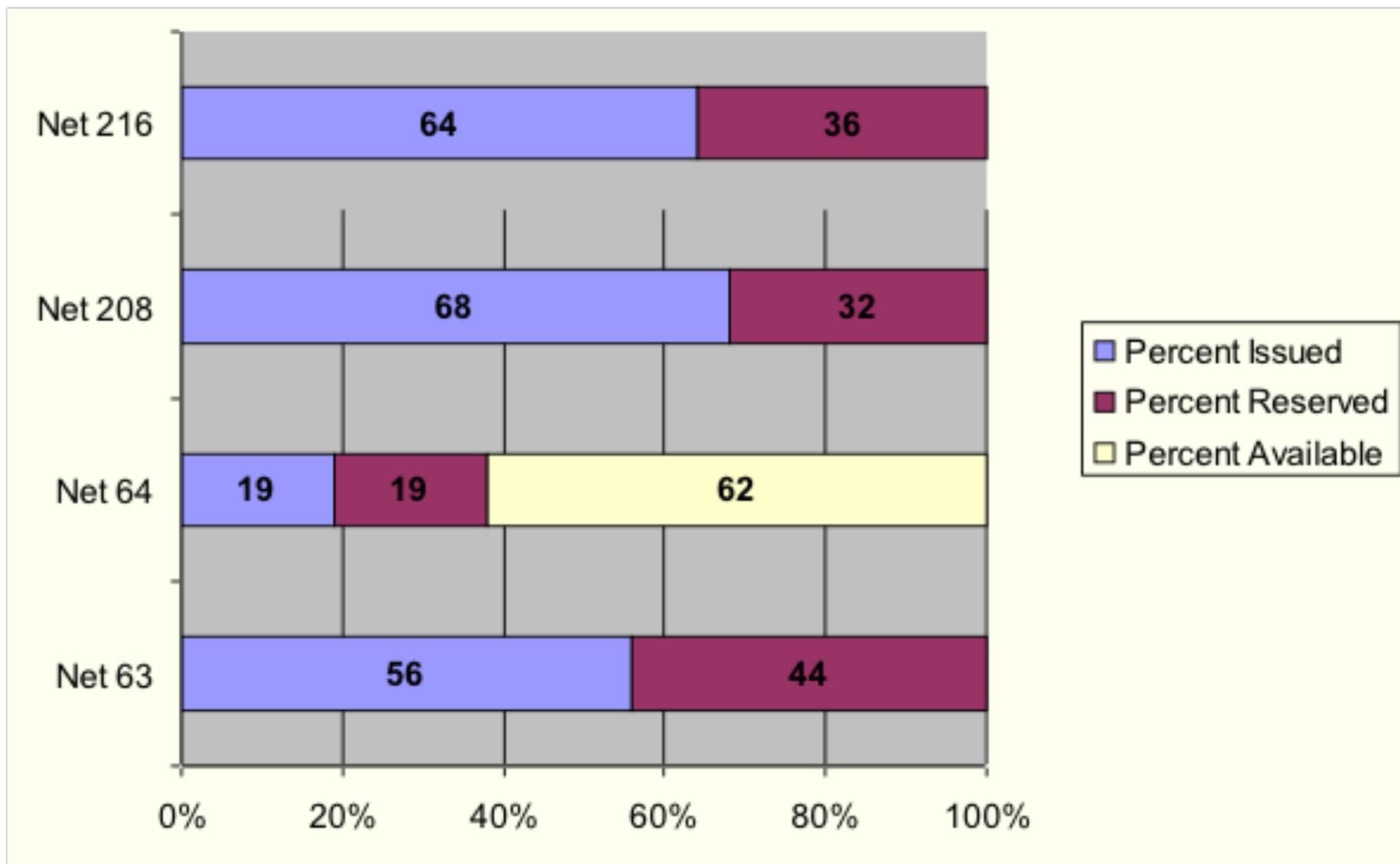
/24s Issued by Month



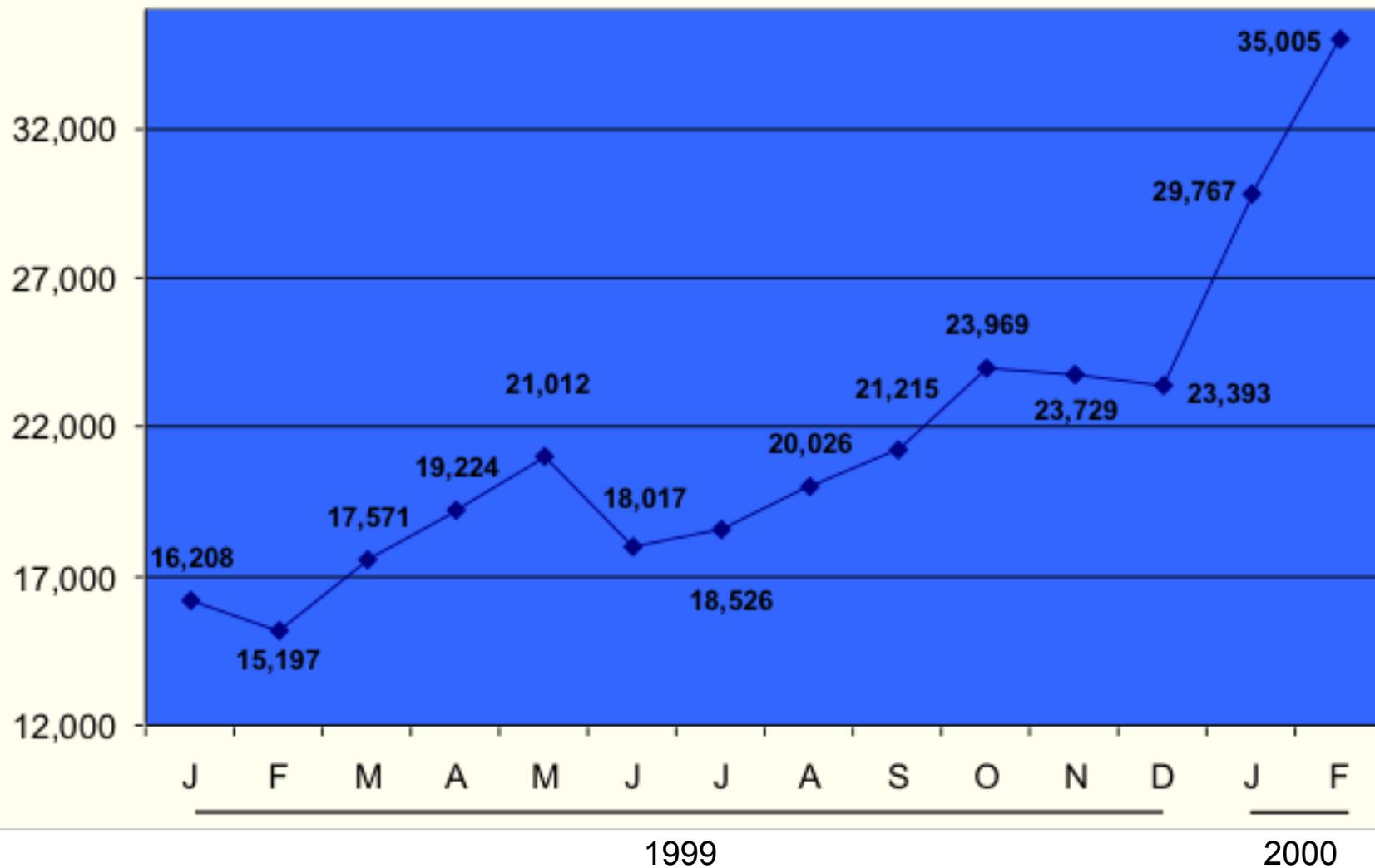
	1998	1999
January	2,048	3,576
February	3,265	3,176
March	5,548	7,040
April	2,664	7,204
May	3,040	6,000
June	4,634	9,760
July	7,436	5,545
August	4,216	6,274
September	3,624	10,608
October	3,548	5,984
November	5,624	9,480
December	5,256	10,192
Total	50,903	84,839

66% Increase

ARIN Block Utilization



SWIP Templates Processed

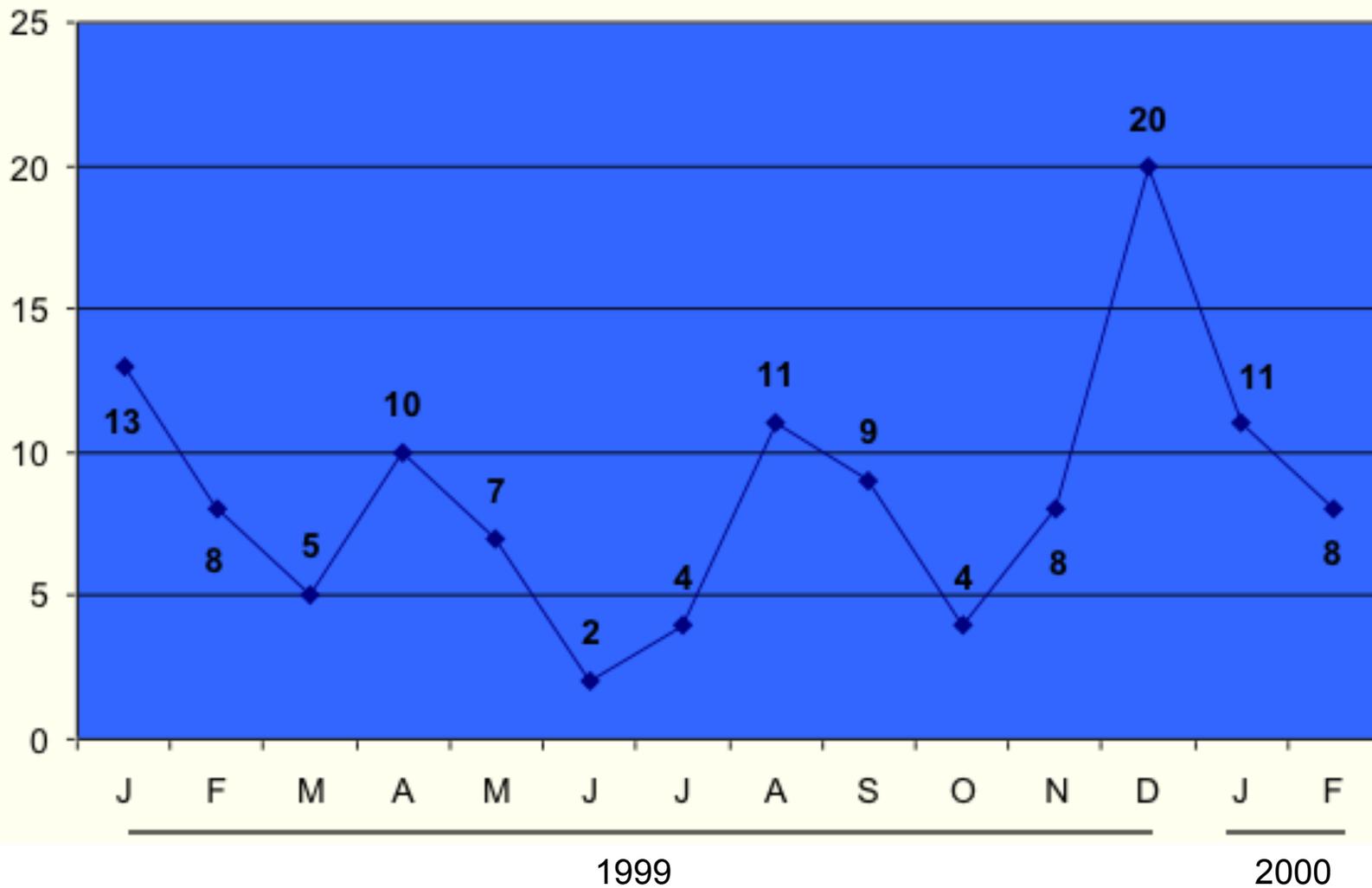


1999 Total
238,087

1998 Total
137,753

73% Increase

Registration Transfers Completed



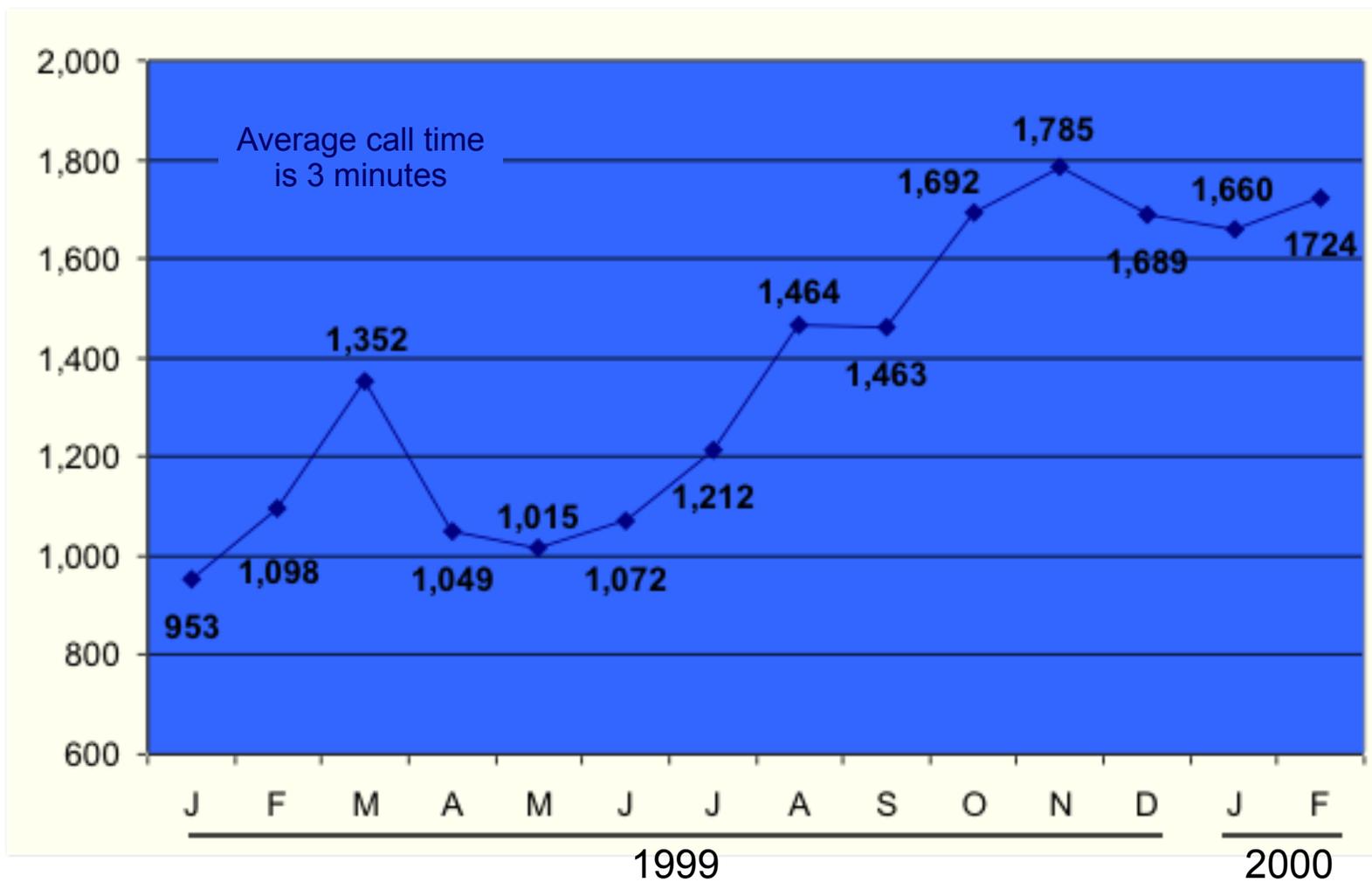
1999 Total
121

1998 Total
70

73% Increase

- 4 Requests Received in Total
 - 3 have been approved and allocated
- ARIN's Initial IPv6 Allocation Size is a /35 from a reserved /29
- See <http://www.arin.net/regserv/ipv6/ipv6-regserv.html> for IPv6 Registration Information

Phone Calls Received



1999 Total
 15,844

1998 Total
 9,081

74% Increase

- ARIN RR Currently Mirrors:
 - ARCSTAR BCONNEX BELL KOREN
LEVEL3 RADB RIPE VERIO FGC
- 446 objects currently in ARIN RR
- See <http://www.arin.net/rr.htm> for more information about ARIN's Routing Registry Service.

Registration Services Staff in Calgary

- The following RSG staff are available at ARIN V to answer your questions

Richard Jimmerson	Registration Services Manager
Michael O'Neill	Senior IP Analyst
Cathy Clements	Senior IP Analyst



Engineering Update

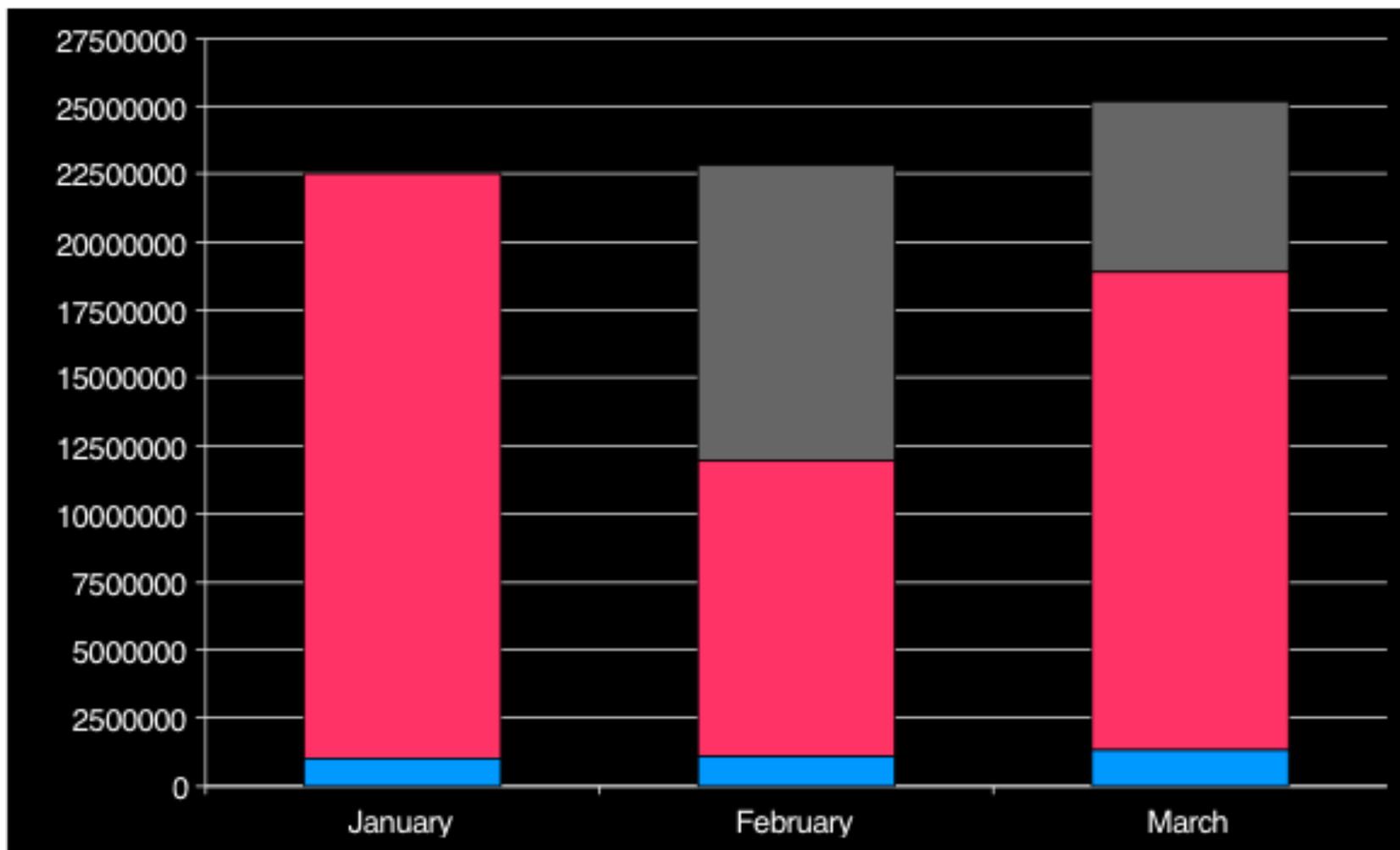
April 2000

New Staff

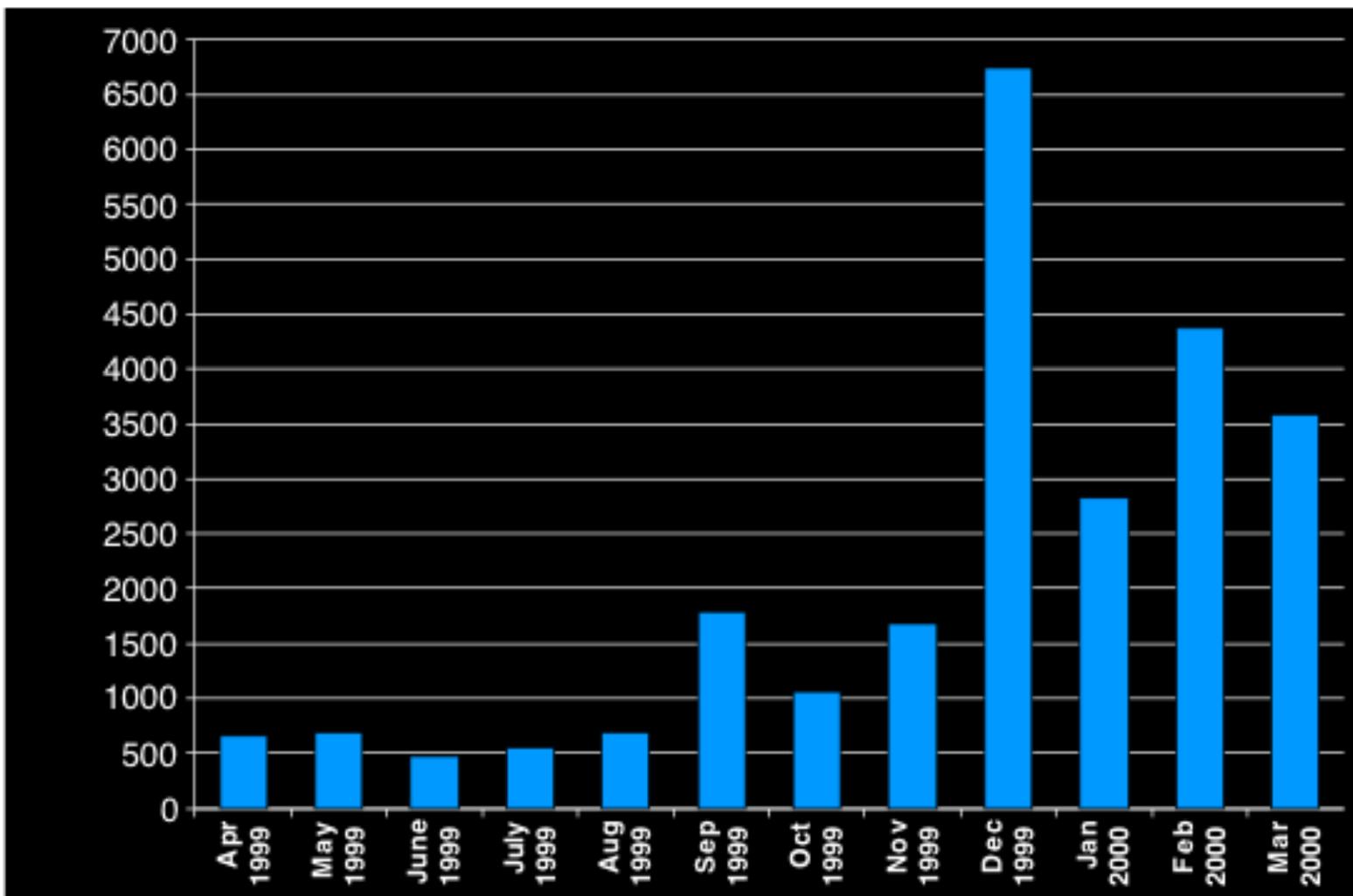
- Manager of Engineering: Debbie Herrmann
- Project Manager: Bonita Best-Mapp
- Webmaster: Robert Bailey
- Senior Systems Administrator
- Junior Systems Administrator

- On-line elections
- E-commerce
 - AS Number registration
 - Maintenance fees
- Billing automation
- Y2K transition

WHOIS Statistics



Routing Registry Query Statistics



ASO AC Member Election Process

- Address Supporting Organization (ASO)
 - Advisory body to ICANN
 - Actions performed by **Address Council (AC)**
 - Advises ICANN Board on IP matters
 - Appoint Directors to ICANN Board
 - Host annual General Assembly
 - Each RIR selects 3 AC members
 - Restrictions while serving on AC
 - Cannot be on ARIN staff
 - Cannot serve on other SO Councils or ICANN Board
 - If nominated for the Board, cannot participate in ICANN or AC elections

ASO AC Member Election Process

- Qualifications of AC candidate
 - Past involvement with ARIN activities
 - IP experience
 - Available to travel to AC and ARIN meetings
 - Can devote time to ASO
- Term of Office
 - 3 years
 - How many consecutive terms?
 - Terms are staggered -- one member elected each year
 - Should terms begin on January 1?

ASO AC Member Election Process

- Election Procedures
 - Online member voting open 1 week before PPM
 - Attendee voting on 1st day of PPM
 - Results tallied and announced at PPM

ASO AC Member Election Process

- Nominating Procedures
 - Issue public call for noms 90 days prior to PPM
 - Anyone in region may nominate
 - Nominees provide bios NLT 30 days prior to PPM
 - Bios posted to web site NLT 15 days prior to beginning of election (1 week before PPM)
 - Nominees will present bios at PPM
 - At PPM, last call for ARIN members to vote

ASO AC Member Election Process

- Mid-term vacancies
 - Hold mid-term election?
 - Leave seat vacant until October election with January start date?

ICANN Contract with USG for IANA Functions

- Period of Performance
February 8 - September 30, 2000
- IANA functions include:
 - Delegation of IPs to RIRs
 - Allocation of IPv4 and IPv6
 - Reservation and direct allocation for special purposes:
 - Multicast addressing
 - Cable blocks
 - Addresses for private networks (RFC1918)
 - Globally specified applications

ICANN Contract with USG for IANA Functions

- Progress reports due in final and every 3 months
- Performance Exclusions
 - ICANN cannot make substantive changes to IANA policy
 - Procedures for policy development is subject to Joint Project Agreement (JPA) with DOC
 - JPA policy development procedures include new/changed policies re Internet technical management functions
 - Alterations in IANA functions are permitted upon mutual agreement between ICANN and DOC

Request for Reconsideration Sent to ICANN

- Submitted by RIRs jointly in response to ICANN / USG contract
- Concerns:
 - Lack of consultation with the ASO, AC, and RIRs for proposal and contract
 - Includes policies currently under consideration and thus not supported by consensus of the community
 - Proposal to the ASO for delegation of addresses by ICANN
 - Proposal to IANA for administration of cable network block 24/8
 - “Globally specified applications” is not recognized by the community and is subject to wide interpretation

Request for Reconsideration Sent to ICANN

- ICANN bylaws define their responsibility to refer ASO-related policy proposals to ASO
- ASO MoU defines the ASO's responsibility for address policy
- Formal request:
 - Contract be subject to review by AC prior to expiry of 30 Sept 2000
 - No further contract or extension be undertaken without the AC approving policy terms

Request for Reconsideration Sent to ICANN

- ICANN / USG contract:
www.icann.org/general/iana-contract-09feb00.htm

Proposal for Delegation of Addresses by ICANN

- Proposal for global policy submitted jointly by the RIRs to the ASO
- Requested adoption by ICANN
- RIRs should have sole responsibility for allocating and assigning addresses
- RIRs are best suited to ensure that global and local policies are adhered to
- RIRs ensure there is demonstrated need for each request, thus ensuring conservation of the finite set of IP numbers

Proposal for Delegation of Addresses by ICANN

- Three proposed global policies
 1. ICANN distributes address space only to recognized RIRs and no other organizations
 2. For its own use, ICANN must request addresses from its representative RIR and must meet established criteria
 3. ICANN will refer IP requests received from entities other than an RIR to the appropriate RIR
- Provides accountability within the IP system

Web-hosting Allocations (HTTP 1.1 Use)

- HTTP 1.1 allows multiple domains to be hosted with a single IP address
 - Many organizations use a unique address for each domain
- Should ARIN make HTTP 1.1 mandatory?
 - Including all requesting organizations as well as current subscription holders?
 - ISPs would have to reclaim address space not efficiently utilized
 - Would there be exceptions?
- If not mandatory, how should ARIN ensure efficient use for web hosting?

Reassignment Information - Residential Users of DSL

- All SWIP templates include
 - Customer name
 - Postal address
 - Telephone number
- xDSL customers and ISPs request exclusion of personal information in DB for reasons of privacy
- Suggested Option
 - Provide no street address or phone number
 - Identify POC as the upstream's POC

Reassignment Information - Residential Users of DSL

Sample WHOIS Record

John Smith (DSL-CUSTOMER-EXAMPLE)
Private Residence
Ashburn, VA 20147
US

Netname: DSL-CUSTOMER-EXAMPLE
Netblock: 64.128.0.0 - 64.128.0.7

Coordinator:
John Johnson (JJ999-ARIN) noc@the-isps-domain.com
555.555.5555

Record last updated on 17-May-1999.
Database last updated on 29-Mar-2000 05:59:09 EDT.

- Initial Allocation policies
 - Slow start (13 bits of NLA IDs, equal to /35) to TLA registries
 - Regional IR uses reserved sub-TLA space for subsequent allocations
 - TLA Registries allocate NLA IDs to ISPs and SLA IDs to end-users

- General Criteria
 - BGP peering relationships with 3 other IPv6 networks with sub-TLA IDs and
 - Requesting organization must have reassigned addresses from upstream providers to 40 SLA customer sites or
 - Requesting organization must demonstrate a clear intent to provide IPv6 within 12 months

- Bootstrap Criteria
 - First 100 sub-TLA IDs
 - No more than 60 within one region
 - BGP peering relationships with at least three other public ASes in IPv4 default-free zone
 - Must demonstrate production IPv6 within 12 months and either
 - Must be IPv4 provider to 40 sites that merit /48 IPv6 allocations or
 - 3 months of 6bone pTLA experience in overall 6-month 6bone

- Other Policies
 - No new allocations to sub-TLA holders before 80% utilization
 - TLA registries must get Regional IR approval prior to subsequent /48 allocations to end-sites

- Feedback Needed:
 - Define ISP or leave it out of document
 - Define transit provider
 - Multiple peering relationships
 - Primary role is network-to-network transport
 - Primary relationship to address resources is route aggregator
 - Define registry
 - TLA Registries
 - NLA Registries
 - End sites

- Highlights from Adelaide IETF
 - Use of /48 or /56 suggested for dial-up users
 - Only 15% of IPv6 space under consideration
 - Avoid unnecessary pressure to use NAT
 - To conserve or not to conserve?
 - Does every single dial-up user need a /48 or /56?

Micro-allocations

- ARIN currently issues micro-allocations to public exchange points and root name servers
- Should they be issued to critical infrastructures and/or multi-homed organizations?
- What are other critical infrastructures?
 - Some considerations:
 - TLD name servers
 - ccTLD name servers
 - Regional Internet Registries
 - ICANN
- If issued to multi-homed organizations, what would impact be on routing tables?

- Suggested Options
 1. Keep policy as is
 2. Lower minimum allocations size, when appropriate, and monitor routing tables
 3. Allocate to multi-homed orgs from a reserved /8 (suggest that ISPs not filter /8)
 4. Keep policy as is but include additional critical infrastructures

Increasing Maximum Allocation Size

- ARIN's current maximum allocation size is a /14
- Allocations are based on 3-month requirement
- This had worked well until recently
- During the past year, 5 organizations have consistently utilized /14s in less than 3 months

Increasing Maximum Allocation Size

- Raise maximum allocation to /13?
 - Will have little effect on ARIN's guidelines and policies
 - Retains 3-month utilization
 - ISPs would not run out of space
 - Will have no impact on fee structure or qualification criteria
 - Will reduce workload of the RSG

Criteria for Establishing New RIRs

- RIRs submitted draft document to ASO AC as guide for evaluating applications
 - Further expands criteria contained in the ASO MoU
- Two new RIRs are forming
 - AfriNIC
 - LACNIC

Criteria for Establishing New RIRs

- Suggested Criteria
 - Gain support of ISPs in region
 - Open, transparent procedures and fair representation of all constituencies
 - Technically capable
 - Stable connectivity locally and globally
 - WHOIS database servers
 - DNS name servers
 - Operational infrastructure
 - Capable staff

Criteria for Establishing New RIRs

- Suggested Criteria
 - Must adhere to global policies:
 - Conservation, aggregation, registration
 - Must develop activity plan that provides support in:
 - Communications, education, training, public mailing list maintenance, information services, database maintenance, meeting organization, liaison/coordination tasks
 - Independent, non-profit, open membership
 - To eventually be financially supported entirely by membership
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- Background
 - Legacy address space was allocated without regard for region
 - ARIN maintains most legacy records for all RIR regions
 - Includes class B blocks, and class Cs issued from the swamp

- Update
 - RIRs are coordinating to separate records into their respective regions
 - ARIN has identified each corresponding country
 - RIRs are devising an approach to delegate in-addr DNS information
 - Problem: These networks cannot be delegated in a DNS hierarchical manner

Database Separation

- **Benefits**
 - Simplifies maintenance for RIRs and ISPs
 - Cleaner, more efficient database
 - Would enhance the task of locating the address holders and recovering unused or underutilized space
 - **Reverse delegation would also be separated and maintained by respective RIRs**
 - Benefit - End users would need to interface with only one RIR for all database and in-addr matters
-

Maintenance Fees for Legacy Records

- ARIN inherited “legacy” space
- Legacy space was allocated without charge
- ARIN has consistently maintained these records
- ARIN is a non-profit, cost recovery, organization
- To be equitable, each entity using ARIN’s services should contribute to its cost recovery
- Improve accuracy of database records and may recover unused space

Maintenance Fees for Legacy Records

- Suggested Solutions
 - Charge a minimal fee for each noncontiguous allocation
 - Contact the record holder by
 - Certified mail
 - Announce on web site
 - Email to most current POC
 - Via trace routes
 - If holder does not respond, the block is placed in reserve for 1 year, then returned to available pool

- The fields ARIN will review in your RWHOIS server have been defined:
 - <ftp://ftp.arin.net/pub/rwhois/arin-request-data.txt>
- ARIN will maintain SWIP and RWHOIS for the foreseeable future

Database Redesign

- Currently undergoing requirements analysis and software design
- Will replace current suite of registration services tools
- Current system was transitioned from InterNIC without redesign
- System Features
 - Current system's primary records include network, ASN, host, and POC records
 - New system's primary records will define the organization and resources allocated to it

- System Features
 - Improved member interface
 - Current system uses emailed templates which causes delay in processing
 - Web-based interface will provide immediate detection of errors and rapid updates of submitted changes
 - All records of an organization can be reviewed and modified at one web site location

- System Features
 - Greatly automates and simplifies transaction processing
 - Allows more efficient use of time for ARIN RSG and accounting staffs
 - Improves billing cycle and interface between RSG and Accounting staff
 - Improves security by utilizing authentication, authorization, and auditing facilities
 - Improves integrity and provides cleaner data
 - Will have referential constraints built in and well-defined rules for screening data

Definitions

- Authentication
 - Proving a user's identity
- Authorization
 - Determining whether a user is granted permission

- Proposed Approach
 - Tie authentication to POC
 - Supported methods
 - Matching “From” field to user entry (email only)
 - Verify signature using PGP public key
 - Using login/SSL password, password is sent over secure HTTP connection (web only)

- Authentication Problems
 - “Mailfrom” is insecure
 - PGP is difficult and requires purchase of RSA software
 - SSL password requires updated browsers or 56-bit encryption, and is web only

- Authentication Key Recovery
 - PGP: New public key
 - SSL: Email “hint” or actual password
 - Should reset a POC to no authentication or a known authentication
- Email encryption?

- Authorization
 - Based on assigned role (e.g. billing-poc)
 - Multiple POCs in same role
 - Roles required to have at least one role
 - POC roles
 - POC ability to change own information
 - Organization roles
 - Main POC
 - Membership POC
 - Billing POC
 - “Fallback” POC

- Authorization
 - Other Roles (e.g. ASNs, networks)
 - Technical POC
 - Abuse POC
 - Role for hierarchical records
 - Reassign POC
 - Technical POC
 - Notification of change via email
 - Lifetime audit trail
 - POCs not viewable in WHOIS and cannot be deleted
-

- User Interface
 - Web-based
 - Login via email address or login name
 - Users are only presented the ability to modify records they have authorization to change

ARIN Outreach

- ARIN is tasked to:
 - Increase and diffuse knowledge to the public
 - Gain consensus on issues from community
 - Represent the Internet community nationally and internationally
- ARIN educates private industry, the Internet community, and government officials on the registration process

- ARIN:
 - Staff participates in technical meetings each year, including ICANN, IETF, NANOG, APRICOT, INET
 - Gives presentations, onsite, to ISP trade associations
 - Gives press interviews on IP related issues
 - Attends RIPE and APNIC meetings
 - Hosts working groups and mailing lists
 - Is an ASO member and participant

- ARIN:
 - Holds Public Policy Meetings (with international participation) and ARIN Members meetings (with open membership)
 - Advisory Council solicits ISP feedback through hosting NANOG BOFs and presentations
- Suggestions for further outreach?

