

ADDRESS COMMANDER AND NAME COMMANDER

TW TELECOM EXPANDS SERVICES WITH IPAM AND DNS SOLUTION

Benefits:

1. Automated and centralized IP address management for easy roll-out of new services across public, private, and IPv6 space
2. Scalable and flexible solution that supports customer growth and acquisitions
3. Solution that reduced IP requests from 15 minutes to one second
4. Customer-centric view of IPv4 and IPv6 subnets for enhanced customer support
5. Customized reports for better planning and optimized IPv4 resources

Challenges:

In the early 2000s, **tw telecom** (then Time Warner Telecom) experienced rapid growth. This accelerated growth nearly doubled the number of markets that the company serviced — rising from 44 to 75 — and resulted in the need to manage more than a million public IP addresses. This expansion enabled the company to better compete in the market — but there were growing pains.

It soon became clear that an efficient, automated IP address management (IPAM) solution was required to meet the complex and fast-changing needs of their enterprise customers. The solution needed to be future-proof, as the company intended to branch out into IPv6 and grow managed IP services in the future. Specific challenges included:

Operational Inefficiencies

Engineers were tracking IP data across multiple spreadsheets, hundreds of tabs, and thousands of rows. This manual system could not keep pace with the company's growth. "We were spending 15 to 16 minutes on every IP order and a simple request meant paging through every spreadsheet," Vicky Cox, IP/DNS manager at **tw telecom** said.

Administrative Accountability

The legacy IP management system posed serious managerial concerns. "There was no assignment accountability and no ability to track who made modifications," Ms. Cox added.

Domain Management Accessibility

The company managed nearly 1 million DNS resource records using BIND (Berkeley Internet Name Daemon). This entailed two-zone touches for every DNS change, with no easy way to remove domain information when IP addresses were reclaimed. The need for extensive training in BIND further limited the capabilities of the company's hostmasters.

Identifying Underutilized IPv4 Resources

Larger contiguous blocks of free IP address are much more valuable to operators than multiple fragmented blocks because larger IP blocks are needed for new services. Engineers at **tw telecom** had the time-consuming task of manually identifying underutilized subnets on the network. An automated process was required to improve efficiency and optimize IPv4 resources.



"The time taken to make an IP request was reduced from 15 minutes to one second."

"DNS management extended from six to 43 employees."

tw telecom quick stats

- IP Addresses managed: Several million
- Number of business customers: tens of thousands over 100,000 sites
- Number of IPAM users: Over 100
- Markets served in 2014: 80

The Solution:

tw telecom elected to deploy Address Commander and Name Commander from Incognito Software company-wide for IP address and domain management. The software has since become a key part of **tw telecom**'s network operations and wider growth strategy.

Operational Efficiency

From the initial deployment, the company reported higher operational efficiencies and fewer errors. The time taken to make an IP request was reduced from 15 minutes to one minute. Automation and built-in workflow — such as request logic and reclaim logic — contributed to this time saving because manual decisions were replaced with configurable best practices automatically applied by the service with the click of button.

After the initial deployment, **tw telecom** further improved efficiency by using the comprehensive Address Commander API to automate IP assignments. This further reduced assignment time from one minute to less than one second, also allowing improved data integrity on each service provided to the customer.

Flexibility for Growth

Initially the solution offered **tw telecom** the ability to easily manage over a million public IP addresses. This deployment has since been expanded to manage millions of RFC 1918 private addresses, IPv6 addresses, and managed IP services. **tw telecom** now maintains a holistic view of IP and DNS resources from one central web-based solution. This enables the firm to easily manage and report on the IP assignments to tens of thousands of business customers. Today the team can ensure data validity, even while allowing hundreds of users to access IP assignments.

Business Rule Compliance

Address Commander users are clearly defined as IP planners or IP requesters within Address Commander. Each role has a different level of access to help ensure that duplicate assignments and misconfigurations do not occur. Using business rules, administrators can safely and cleanly reclaim IP space when a service is decommissioned. DNS diagnostic checks ensure that problematic DNS configurations are caught before they are applied to the DNS servers, resulting in extended DNS management without compromising accountability or data integrity. In fact, **tw telecom** was able to extend DNS management from six to 43 employees.

Easier and Accurate Reporting

tw telecom gained a deeper understanding of deployed address space — for example, knowing when a customer was assigned an IP address. In addition, customized reports were added to optimize IP address space and IPv4 resources in the following ways:

- Identify underutilized IP ranges that can be re-aggregated and better used as larger aggregations. These “fragmented” ranges are flagged so that the system can intelligently exclude the addresses from future requests.
- Reclaim previously assigned IPs from “fragmented” address ranges that become available as customer services are decommissioned. A second report identifies IP blocks for aggregation or super-netting. This report then links to the snapshot scheduling system and is automatically forwarded to the correct group.

The reports, background snapshot system, and built-in business logic have allowed tw telecom to optimize their IP network plan as services, customers, and devices are naturally decommissioned. The ongoing optimization allows for highly efficient use of all available IP space at a time when global depletion of IPv4 and slow adoption of IPv6 is a pressing concern for network management and RIR requests.

Managed IP Business Services

Enterprises require public, private, and potentially IPv6 address space, depending on the IP services being used. Requests are now processed in a way where only IP address ranges from specifically allocated pools are assigned to a customer. Address Commander encourages the proper utilization of limited IPv4 public address space and minimizes service issues, helping to facilitate the roll-out of managed IP services and cloud-based services going forward. Customer sites are represented in a hierarchy in Address Commander so that IP assignments can be assigned to a business customer’s different site.

Customer Feedback:

After nearly a decade with Incognito Software, Vicky Cox says the solution’s benefits have gone beyond business productivity. “We are pleased to have been able to work with a single vendor who has been able to adapt to our changing needs and show us how to make the most of our deployments as we launch new projects,” she says. “Incognito Software has allowed us to shorten processing times, expand administrative control, and gain greater visibility over IP and DNS management — all of which has been essential to stay competitive as we adopt new technologies and adapt to a changing marketplace.”

Incognito has worked with tw telecom since 2006 and continues to help the team get the most out of their solution:

