EzIP Executive Summary

A Simple and Secure Approach to
A Virtually Unlimited Pool of Assignable IP Addresses

The Challenge
The depletion of the assignable Internet address pool has been identified as a problem for years, even as vulnerability to hackers continues to increase, without adequate practical solutions in the near term.

The Solution
The EzIP (phonetic for Easy IPv4) is a scheme to dramatically increase the Internet public address pool by utilizing a very basic element of the IPv4 standard. Drawing from a long-reserved block of IP addresses, the scheme adds to the IP header an extension address payload that can be used by a functional module, called a Semi-Public Router (SPR), at the source and destination ends of a link to effect the additional routing.

The Implementation
The SPR may be implemented as a functional enhancement to the existing software or firmware of the Internet Edge Router (ER), or as a new inline hardware module, between an ER and the Routing / Residential Gateway (RG) that it serves. In either case, the SPR converts each IPv4 public address into 256 million new, unique addresses.

The Benefits

A. Assuming each person owns, on the average, 6.6 IoTs (Internet of Things), a single IPv4 public address can now serve an area with population up to 39 million. This is more than the population of the world's largest city (Tokyo metro: 33 million) and that of most countries, thus resolving all current and foreseeable IPv4 address shortages.

B. The abundance of assignable addresses allows each one to be systematically and uniquely identified with a geographical location, much as in traditional telephony, to allow unambiguous tracking of suspicious packets, thus greatly enhancing security in the cyber space.

C. With the expanded EzIP capacity, the existing Internet routing fabric will have the capability to support up to 239 new, world-wide digital communication systems, each as large or larger than the current Internet, while operating at arms-length from one another.

TAM (Total Addressable Market)
In the fully deployed EzIP environment, each one of the current 4 billion IPv4 public addresses may be augmented by an SPR with 256 million client ports.

Background Information
https://ams-ix.net/technical/statistics/sflow-stats/ether-type
https://stats.labs.apnic.net/ipv6