Packet Clearing House

AfriNIC 14

IXPs and Internet Growth

June 9, 2011

Bill Woodcock
Research Director
Packet Clearing House

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IXP Data from the IXP Directory

The quantitative data in this talk is all derived from the global directory of Internet Exchange Points that Packet Clearing House maintains.

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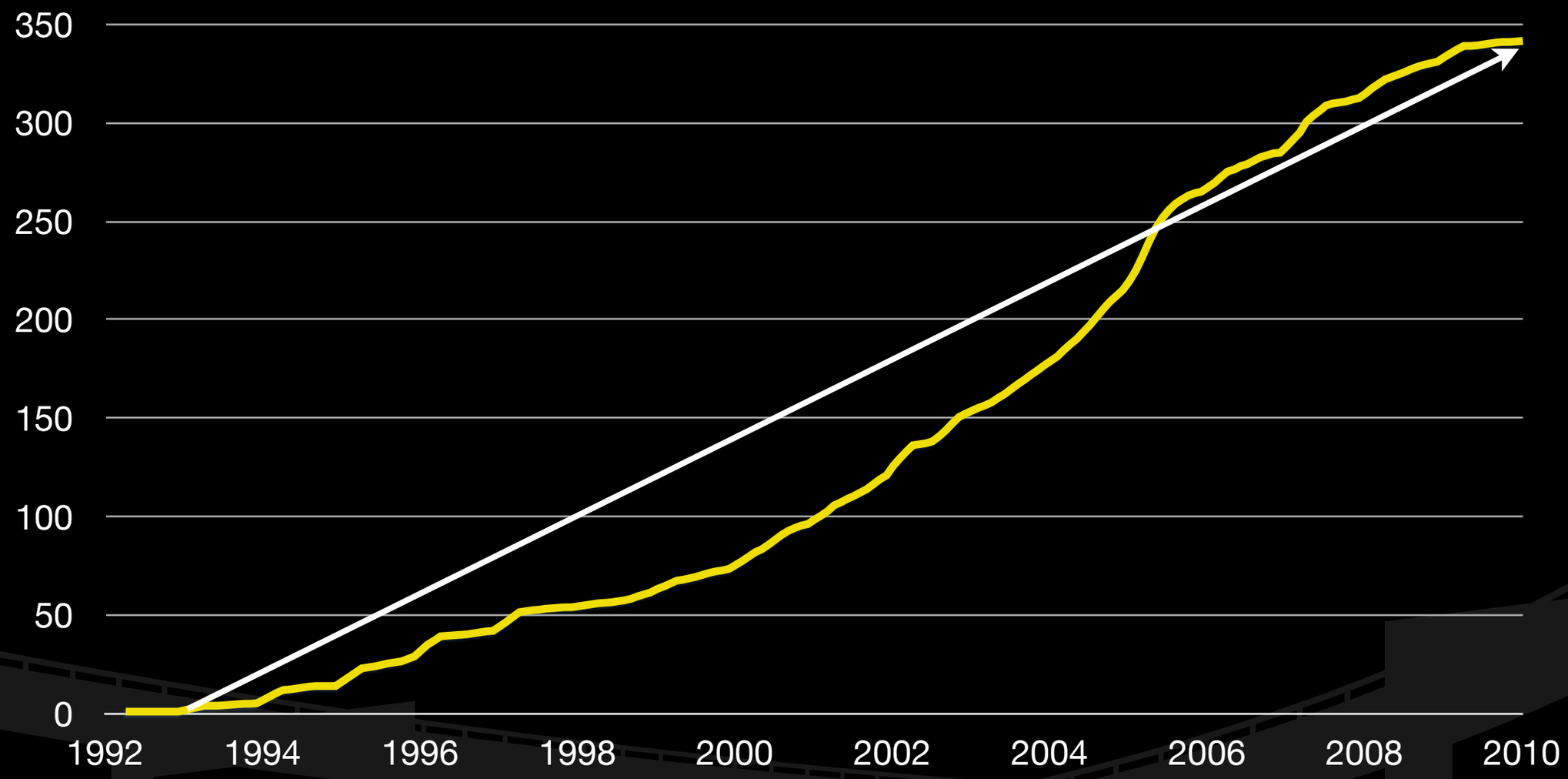
Number of IXPs



About one every three weeks

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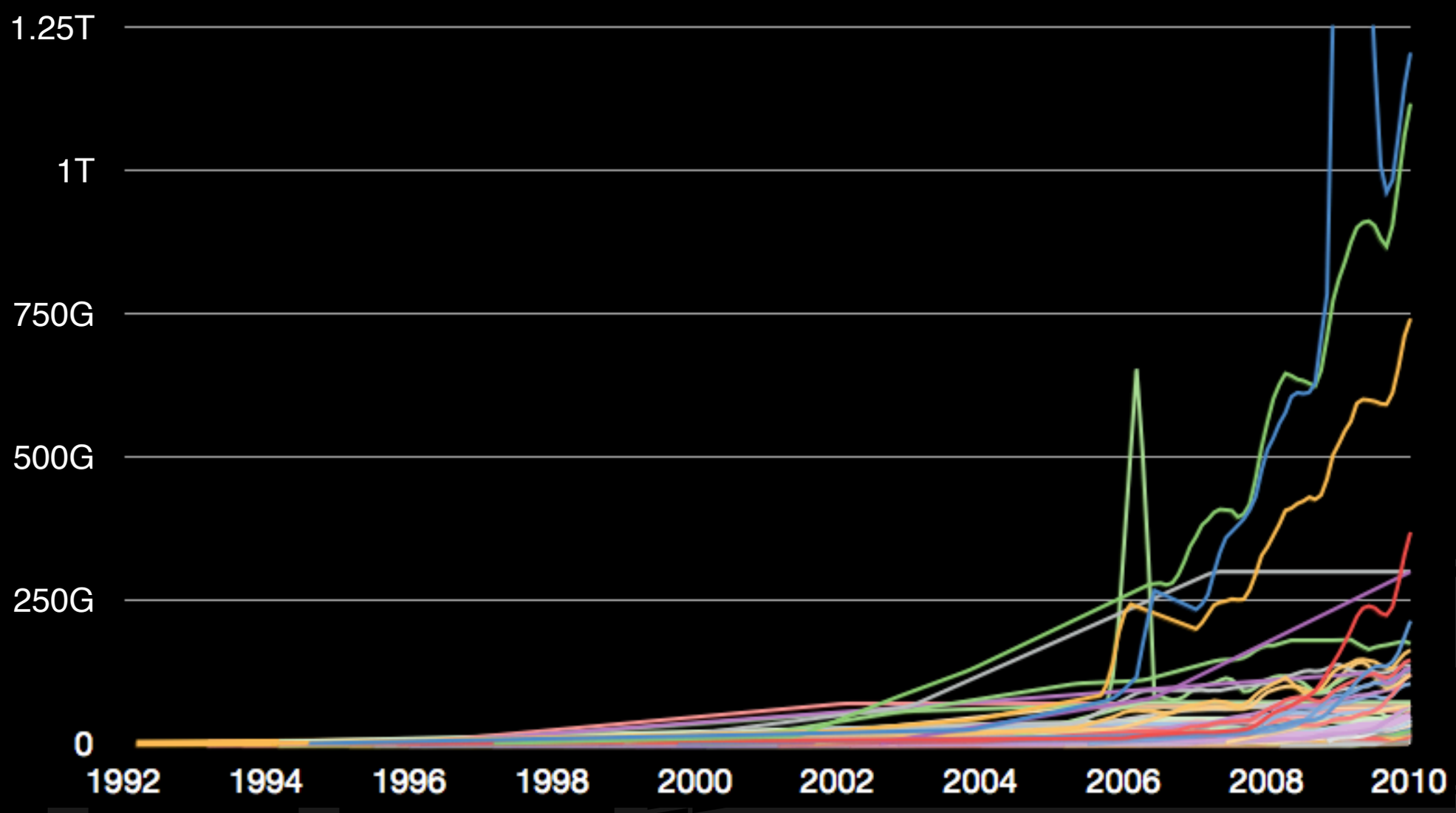
Bandwidth Production per IXP



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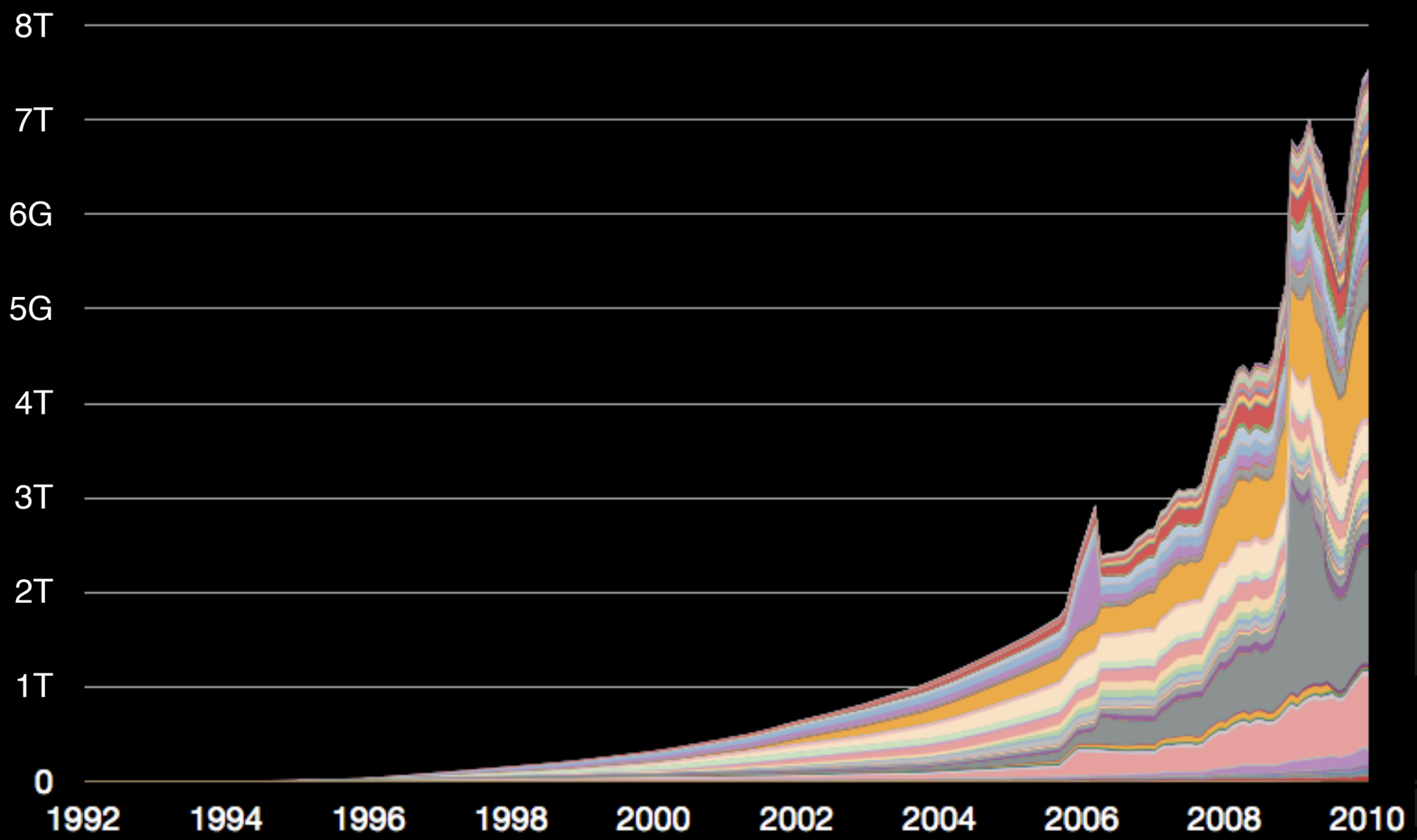
Global Bandwidth Production



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IXP Prefix Mapping

New feature of the IXP Directory:

Geographic mapping of advertised prefix origins.

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IXP Prefix Mapping

Caveat:

Depends on route visibility at the exchange and accurate RIR whois country record.

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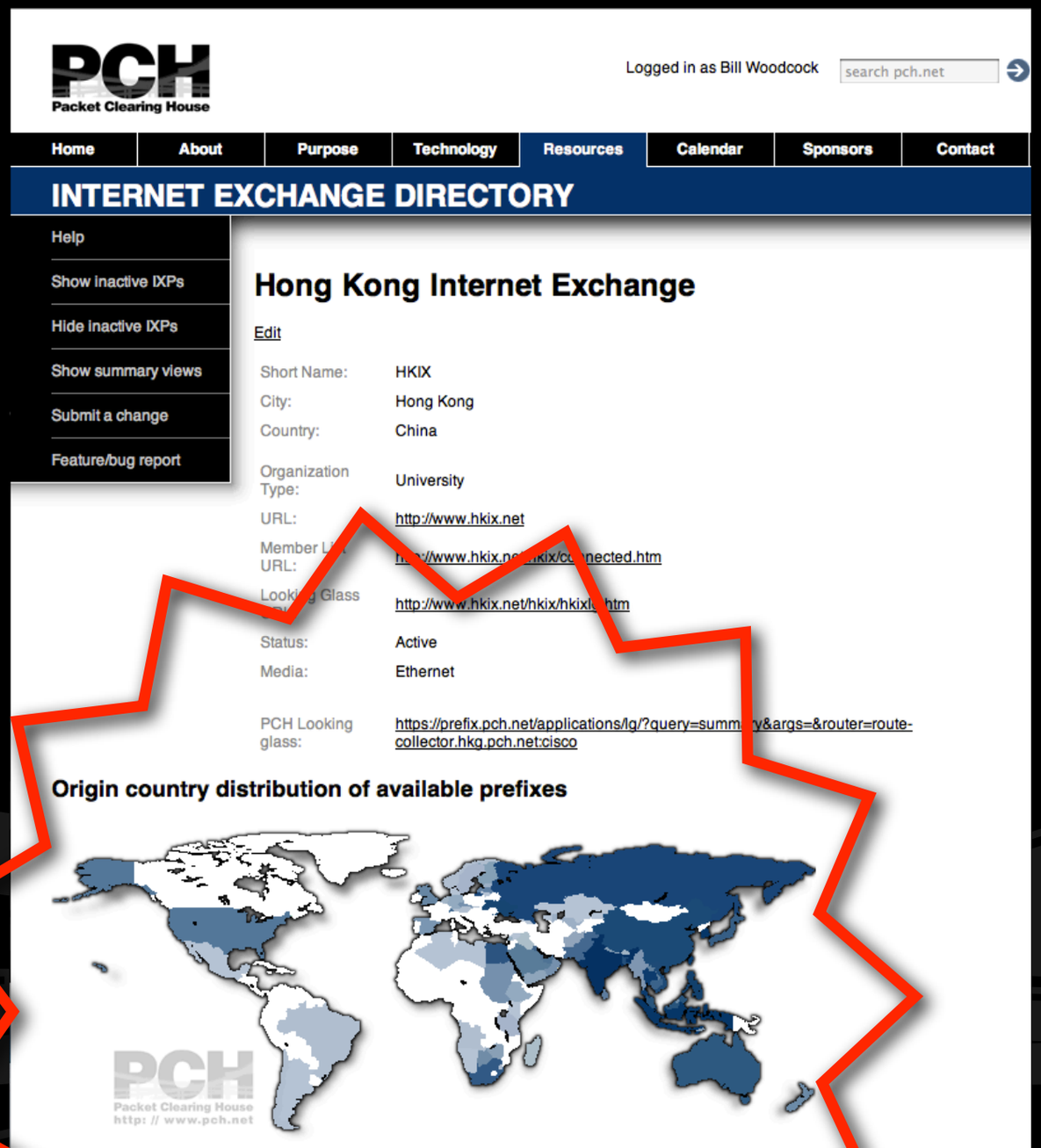
IXP Prefix Mapping

http://pch.net/ixpdir



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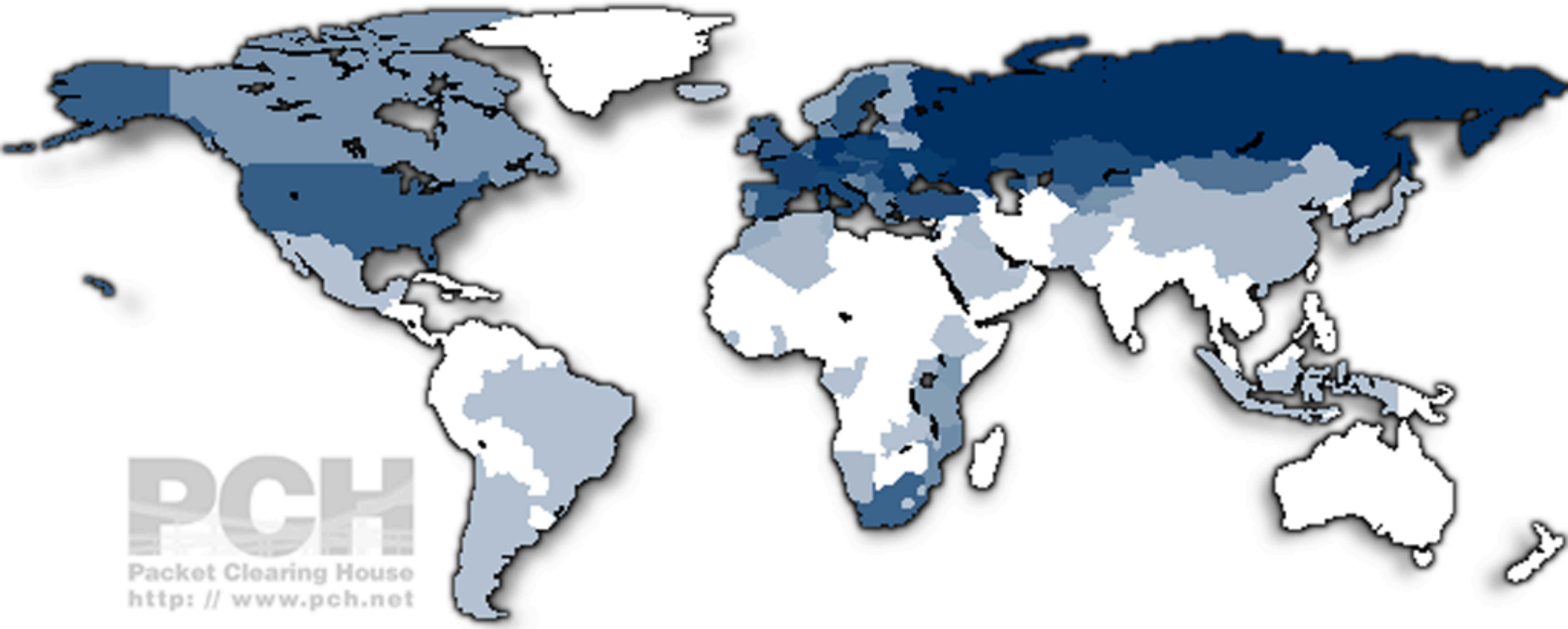
Vienna



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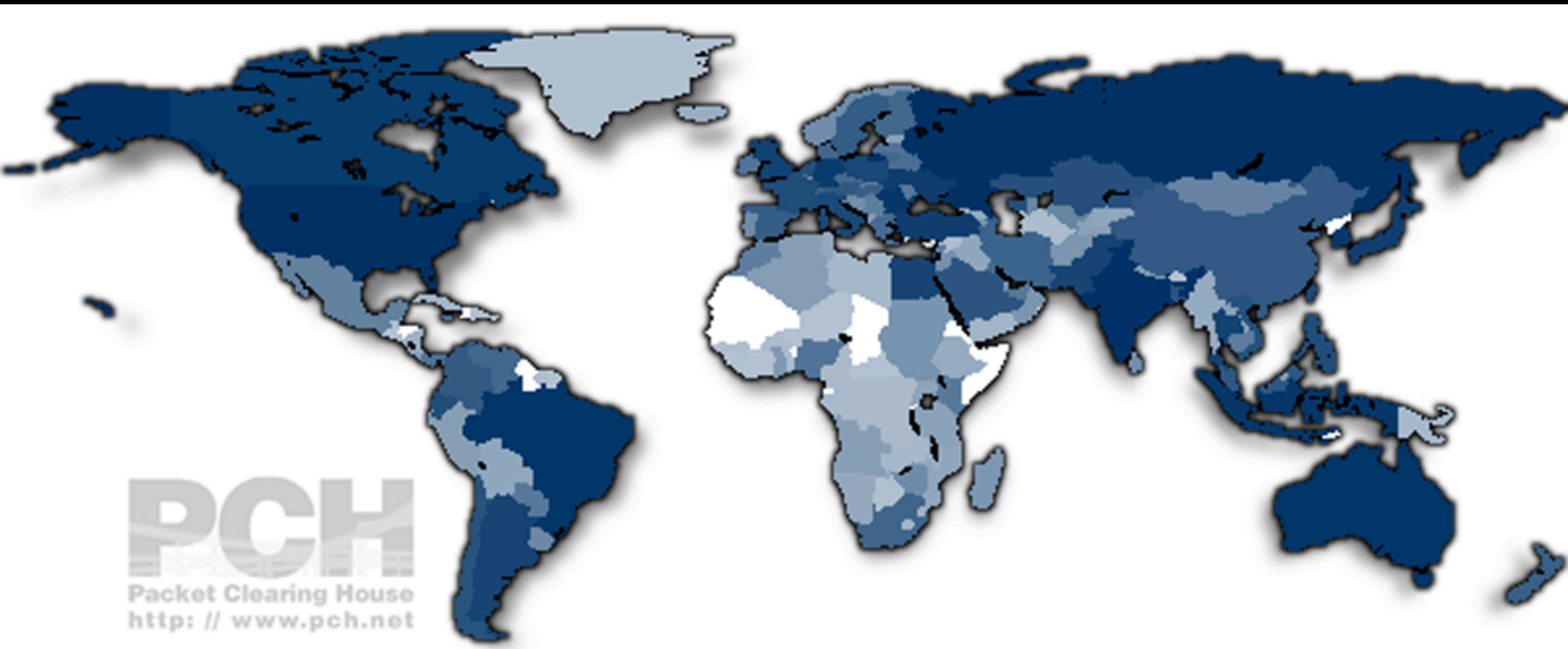
Frankfurt



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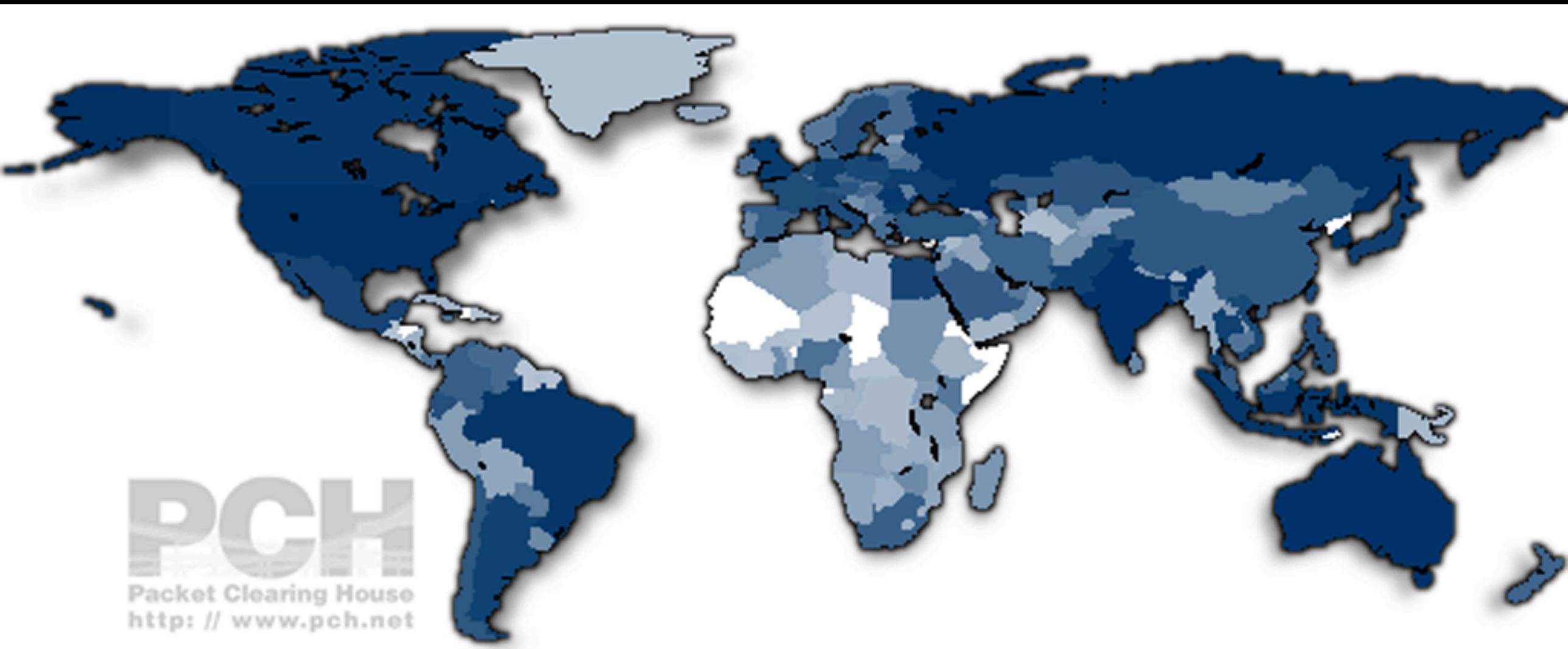
Amsterdam



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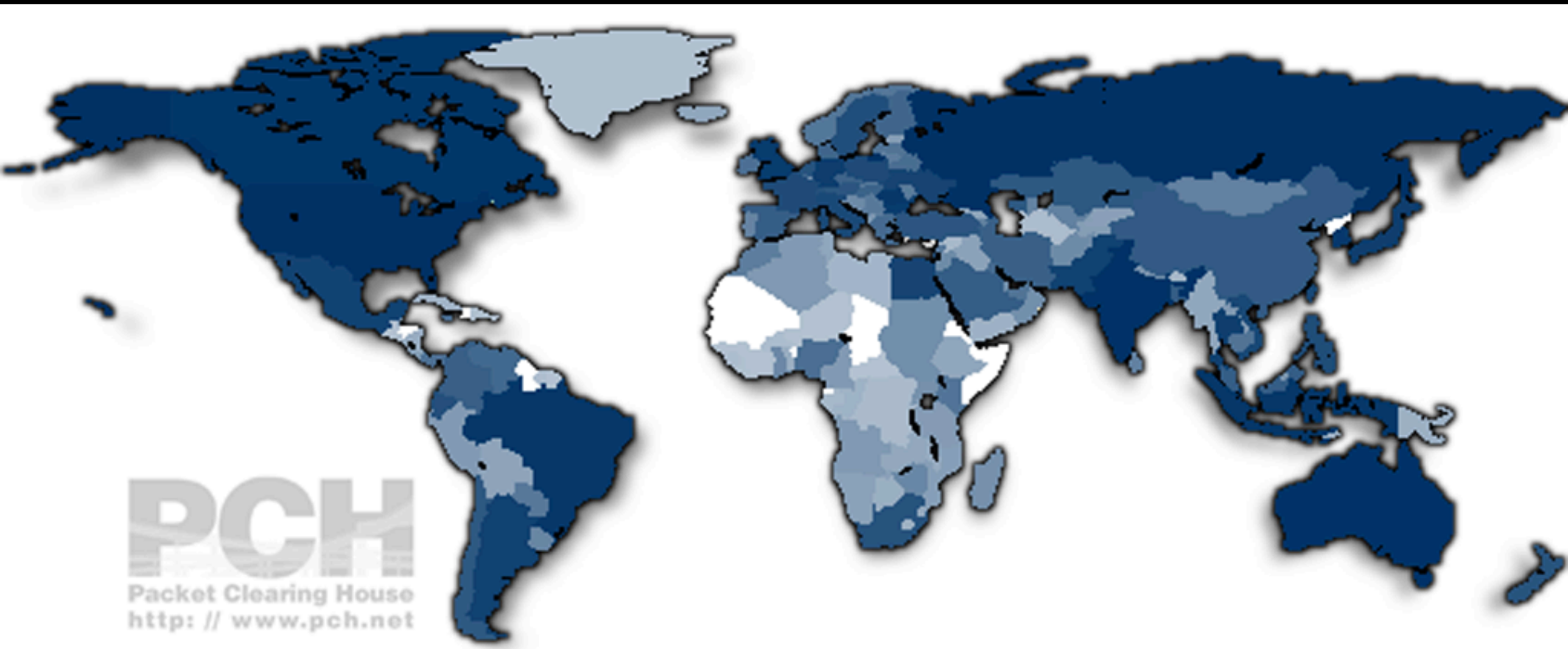
London



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Buenos Aires

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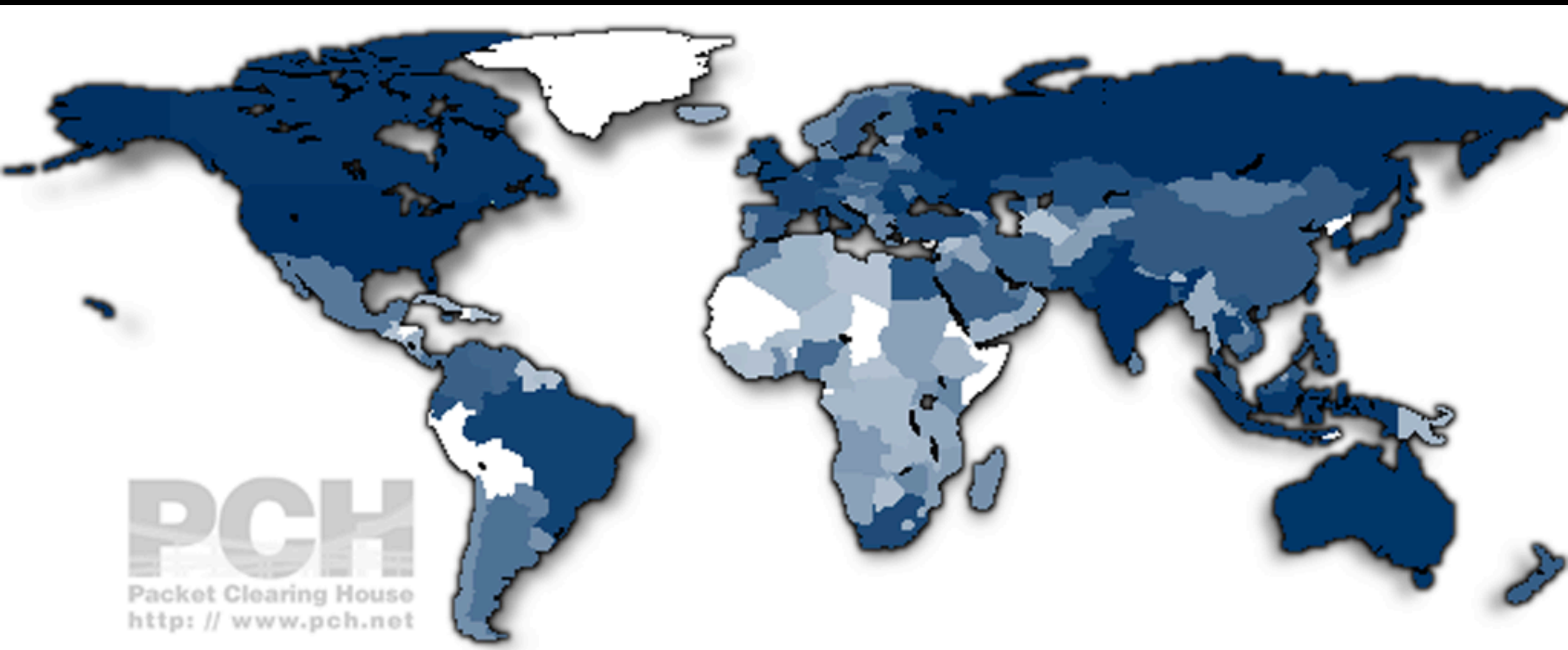
New York



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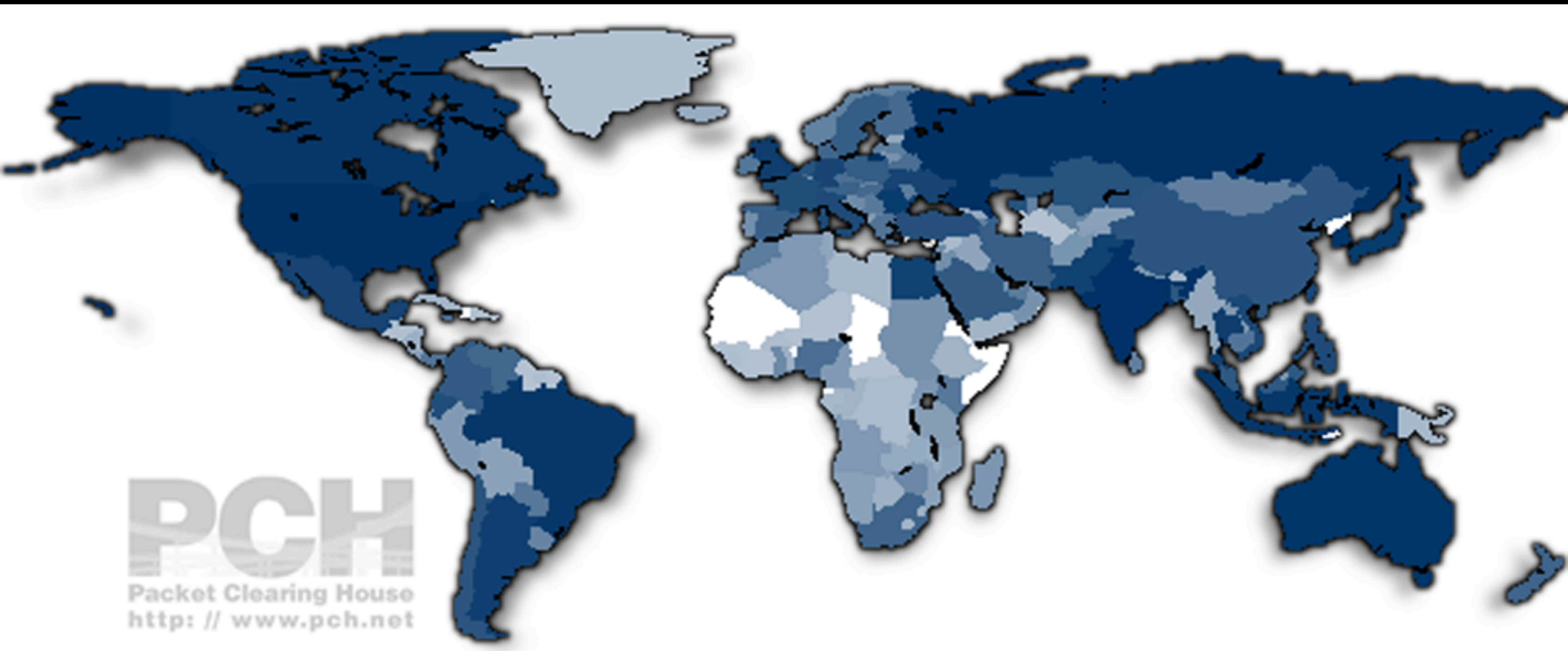
Washington DC



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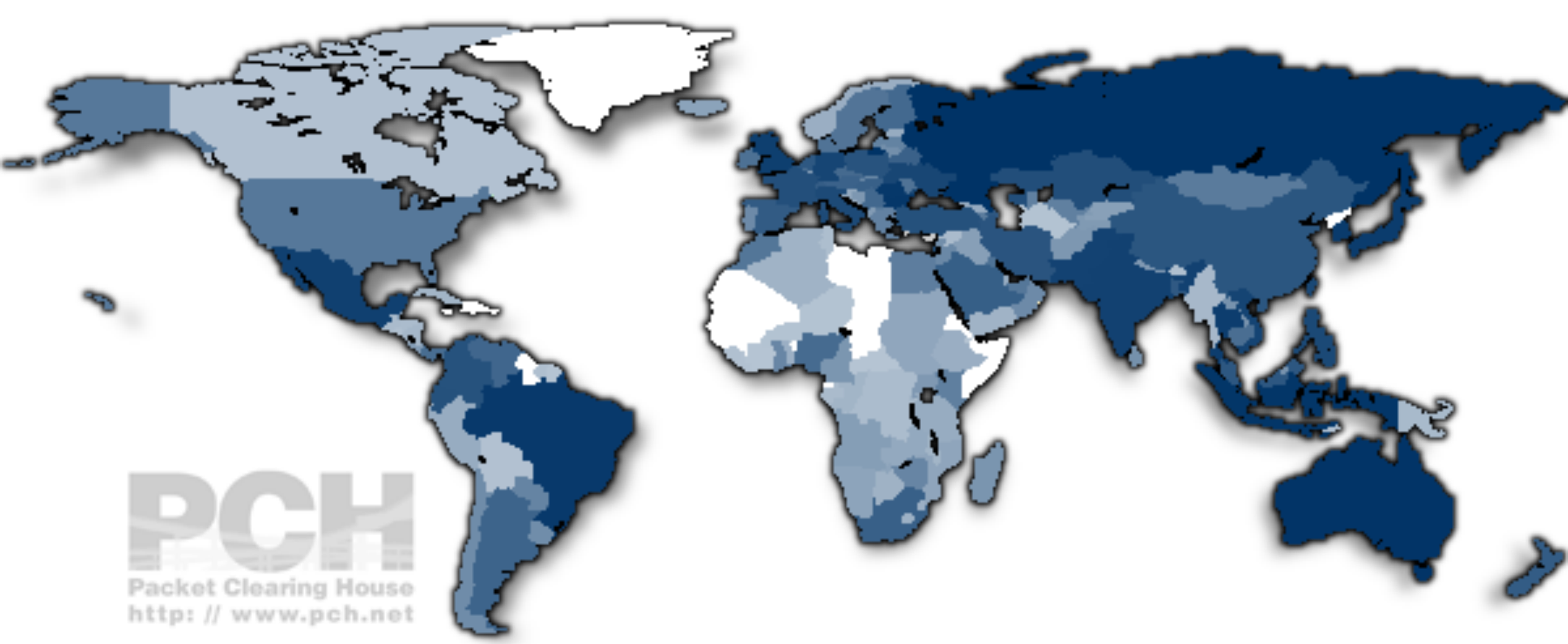
Miami



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Ottawa

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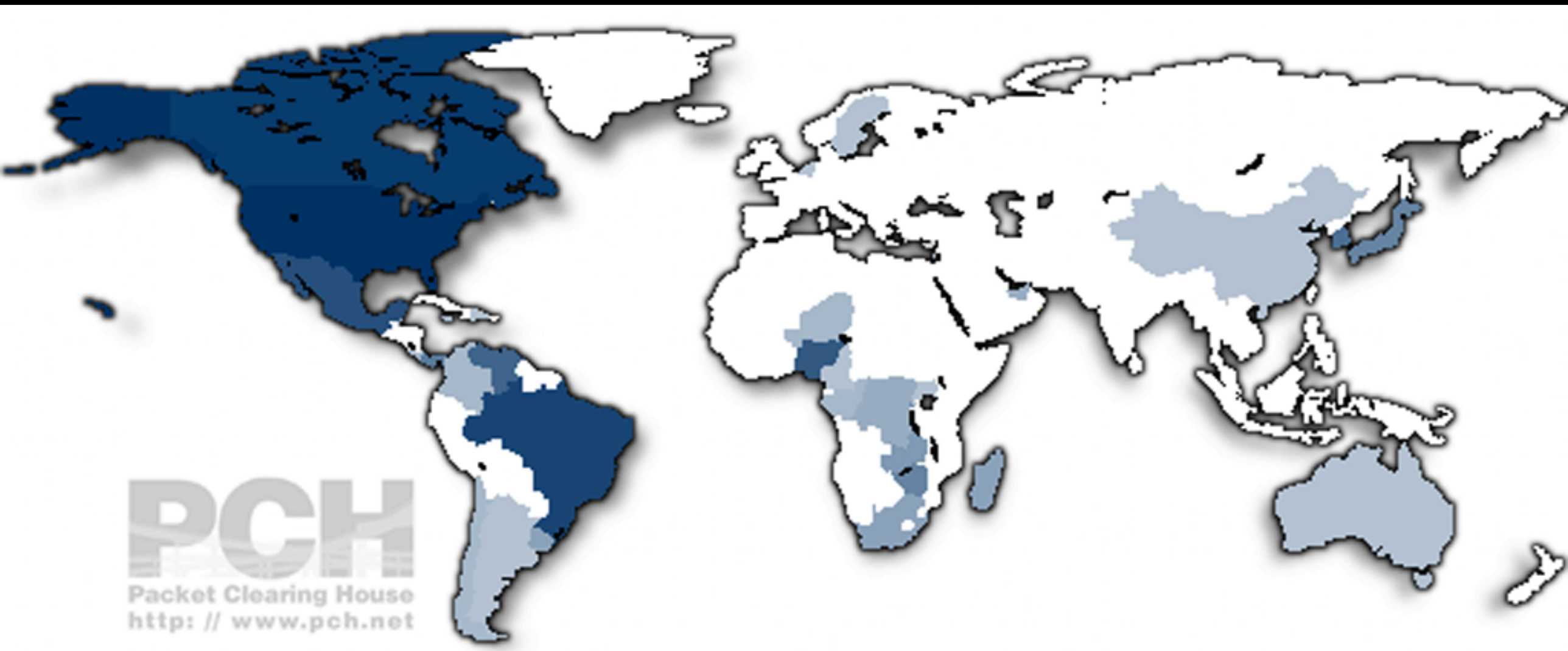
Toronto



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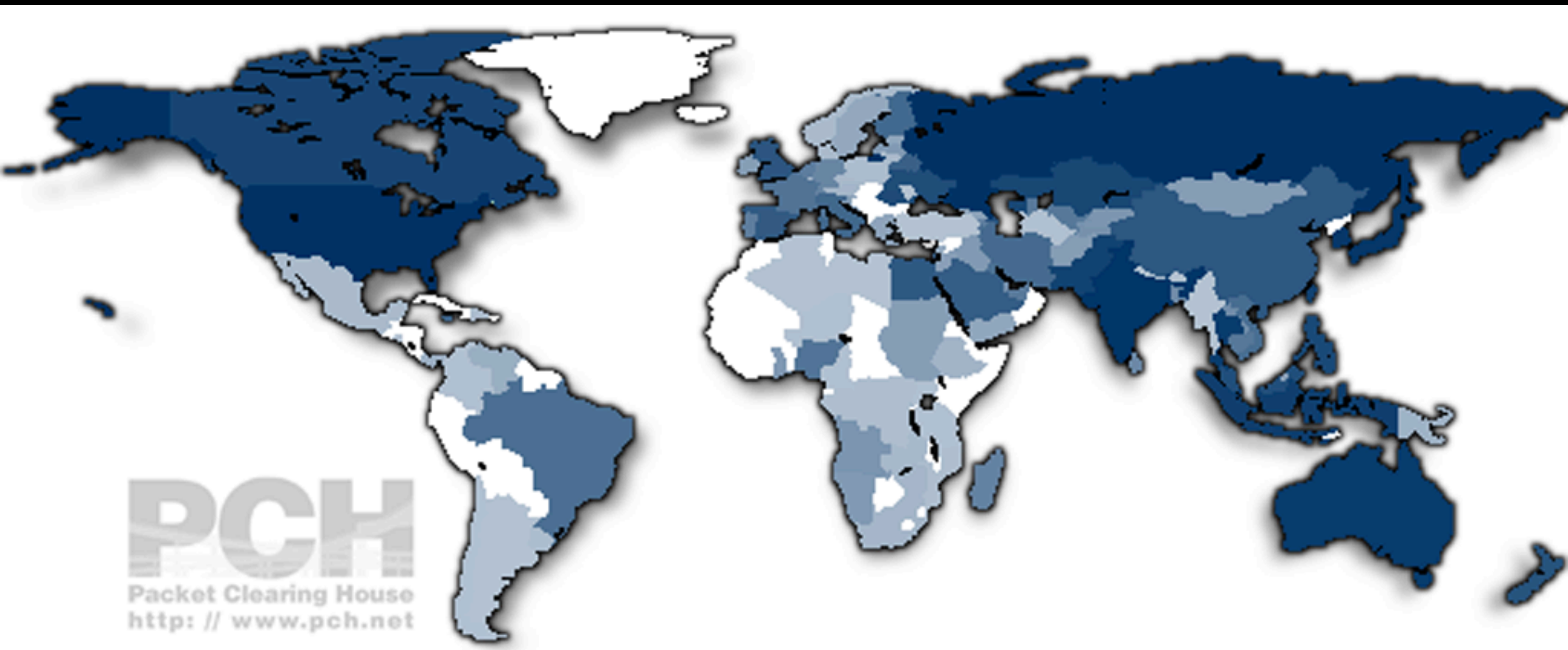
Los Angeles



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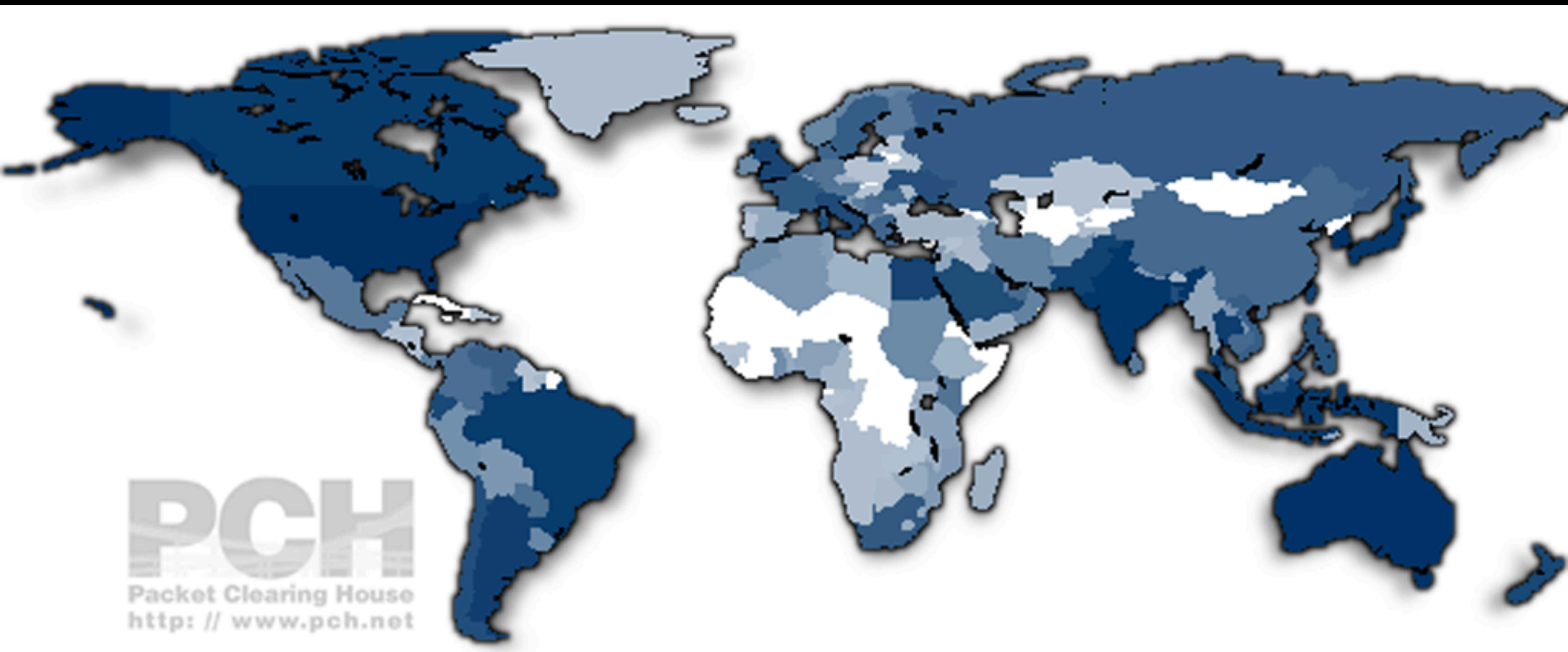
Palo Alto



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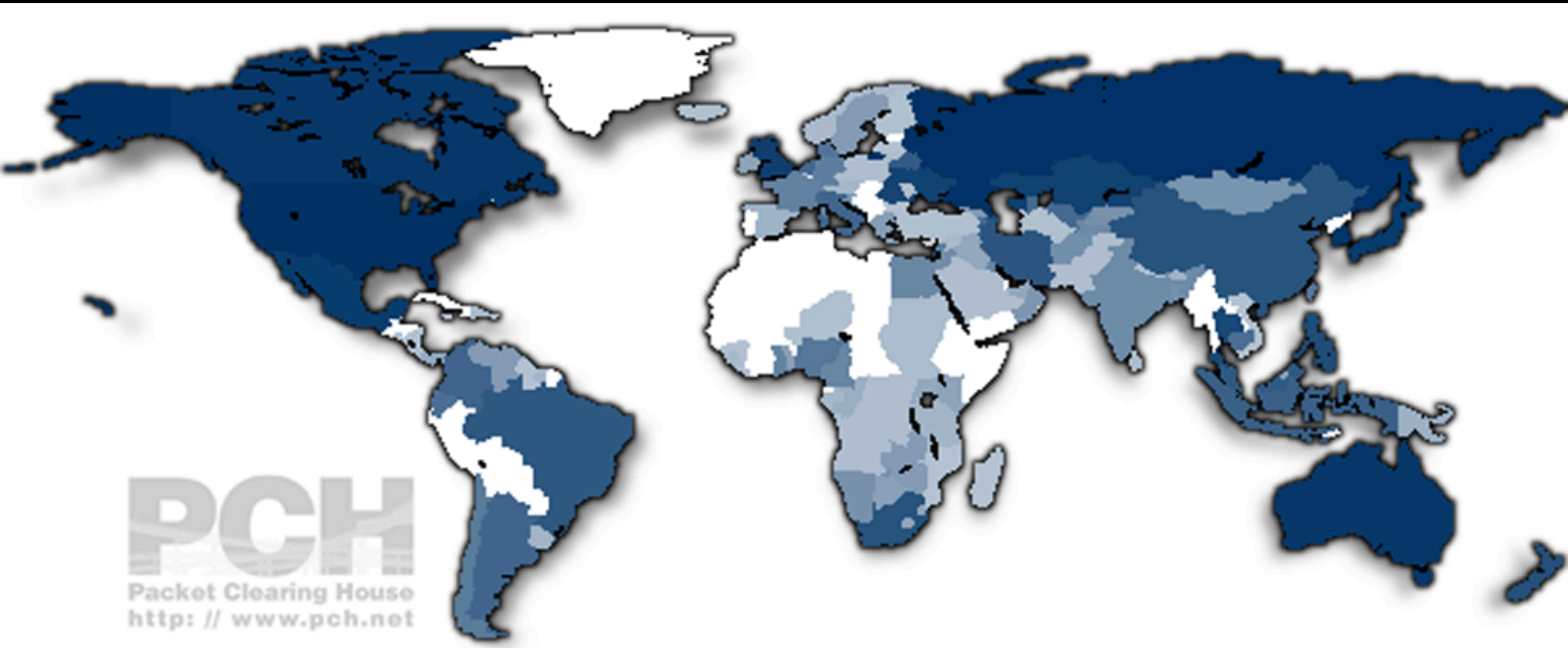
Seattle



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Auckland

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Wellington

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Sydney

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Tokyo

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Jakarta

Packet Clearing House

Perth

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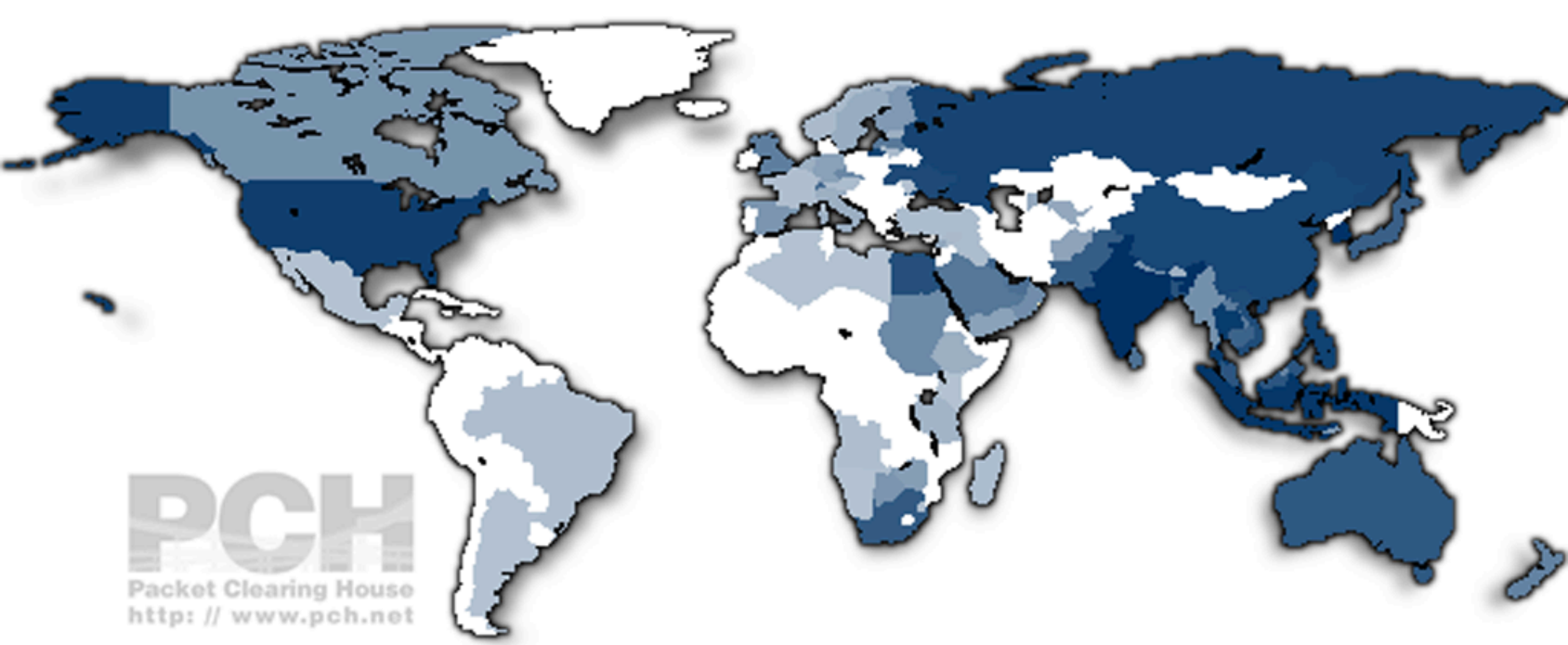
Hong Kong



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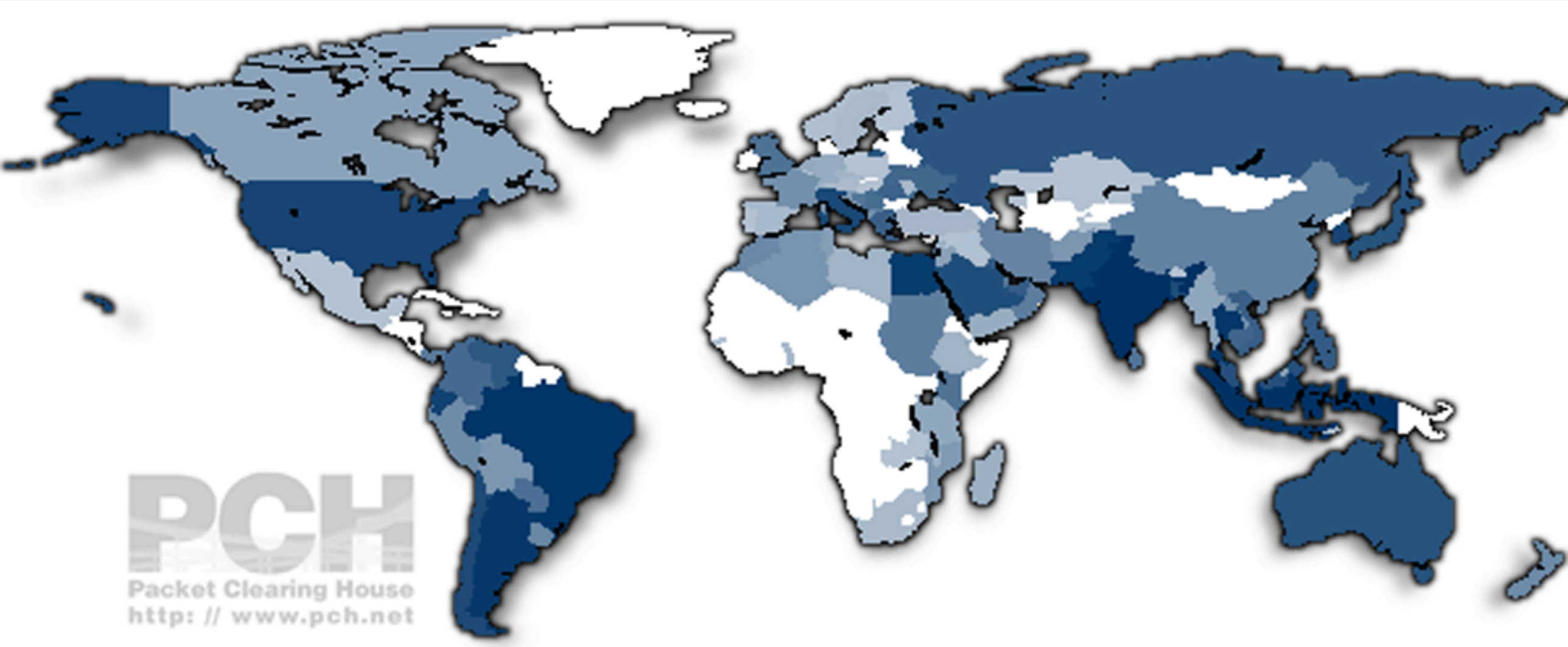
Singapore



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Maputo

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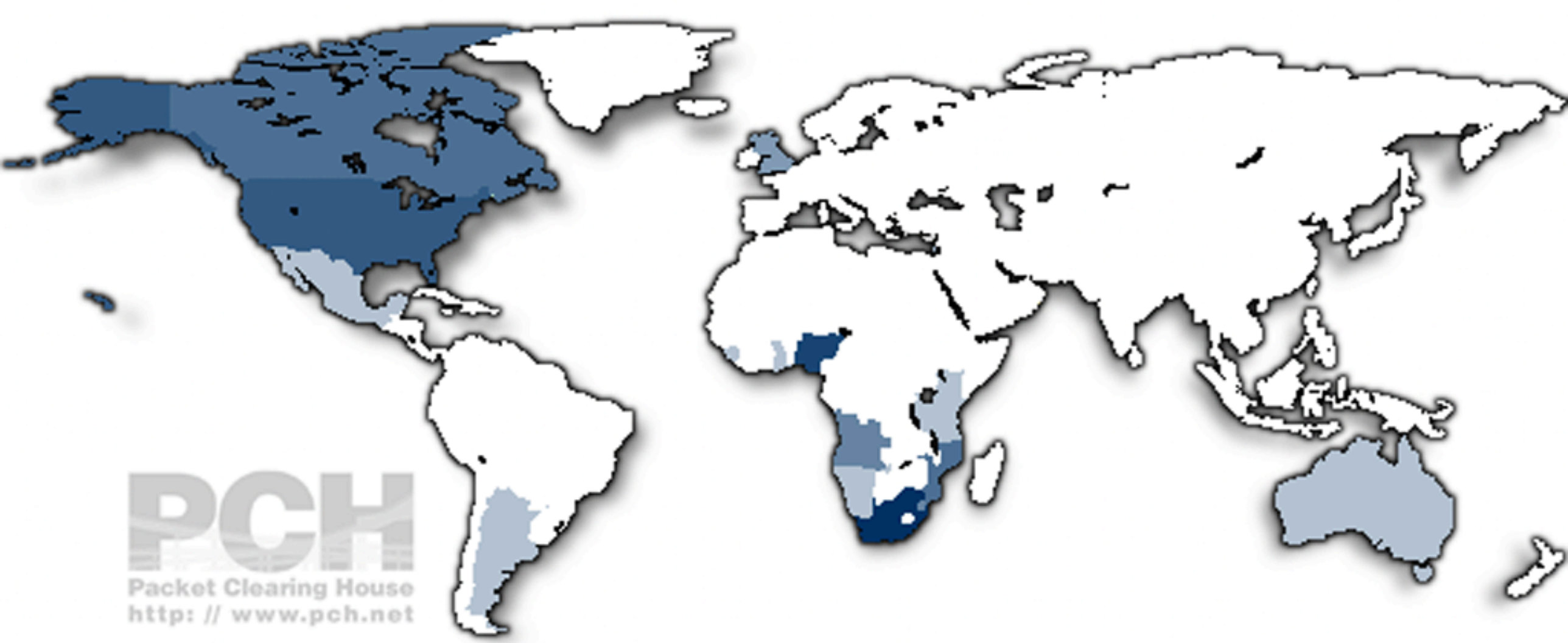
Cape Town



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Early Stage of Outage Visualization

PCH has been working on an Internet outage visualization system for several years, and this feature is possible because it’s beginning to reach fruition.

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Egyptian Routes Seen from Frankfurt
Sunday, January 23, 2011

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Egyptian Routes Seen from Frankfurt
Sunday, January 30, 2011

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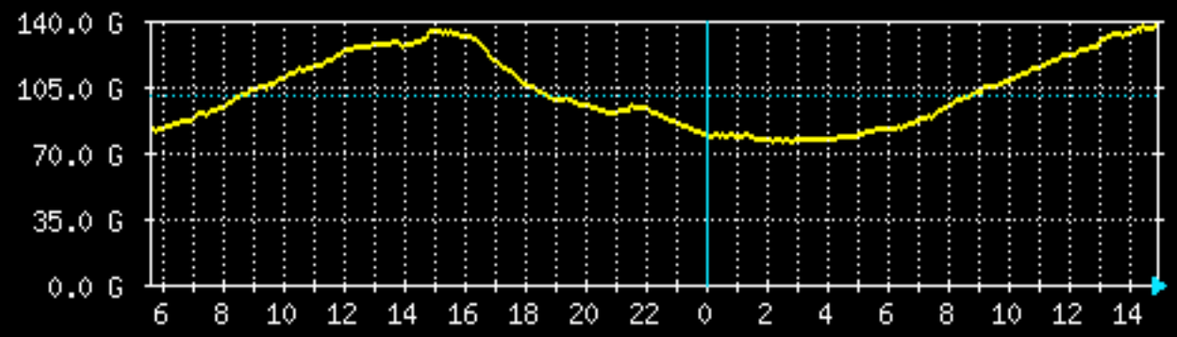
Egyptian Routes Seen from Frankfurt
Sunday, February 6, 2011

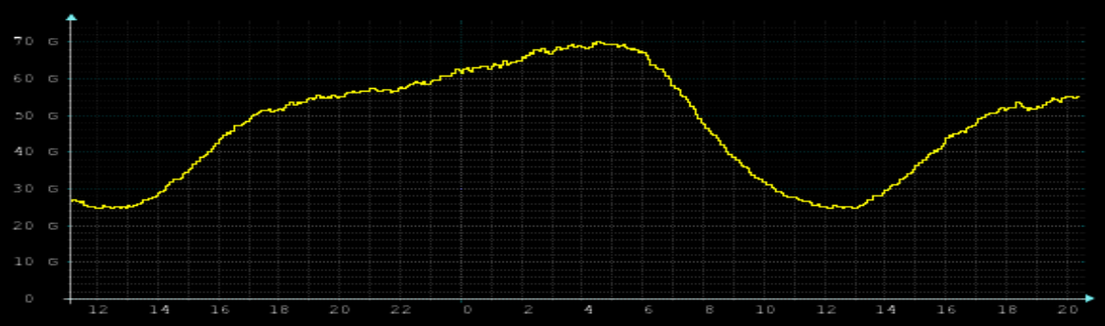
Degree of Diurnal Variance

New York



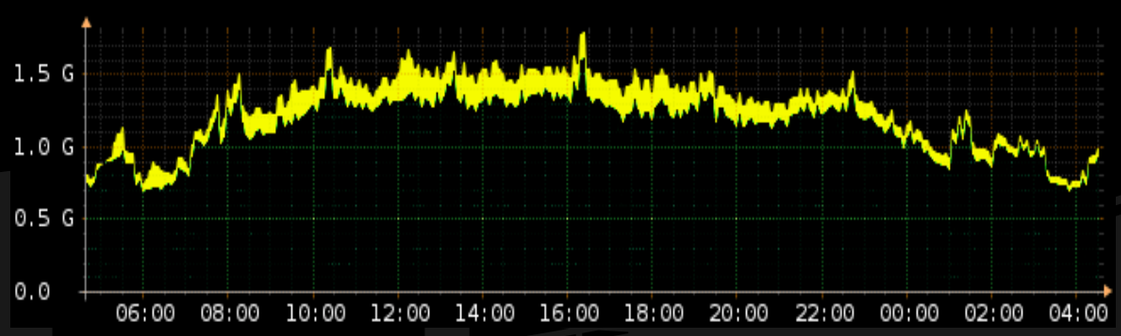
42% variance

Seattle



58% variance

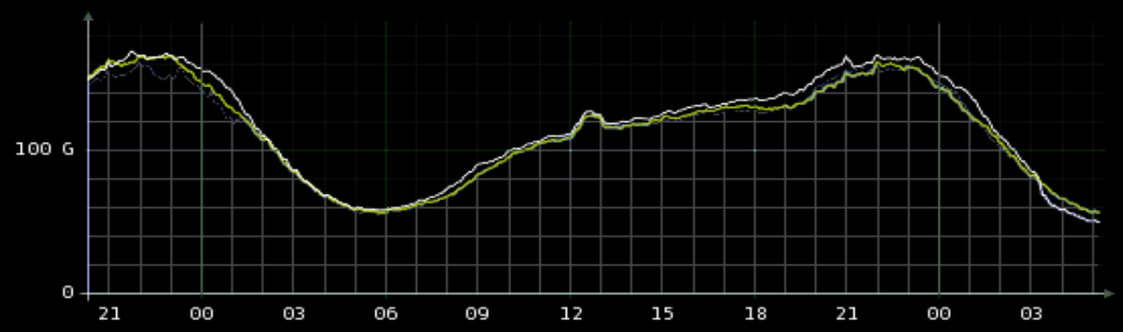
Perth



62% variance

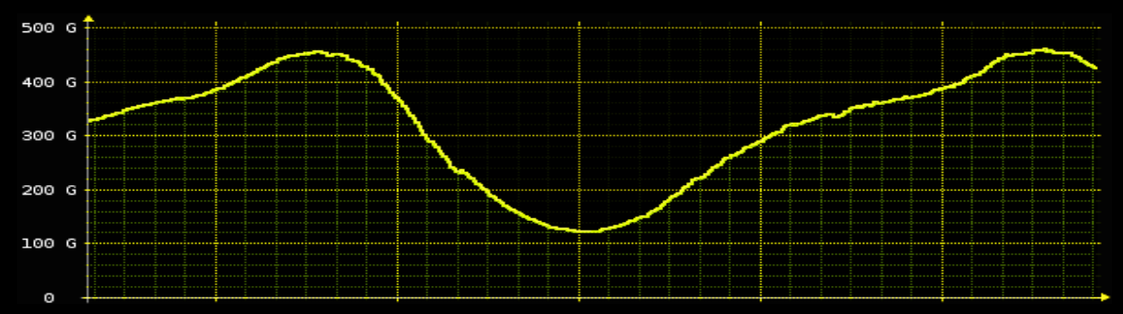
Degree of Diurnal Variance

Tokyo



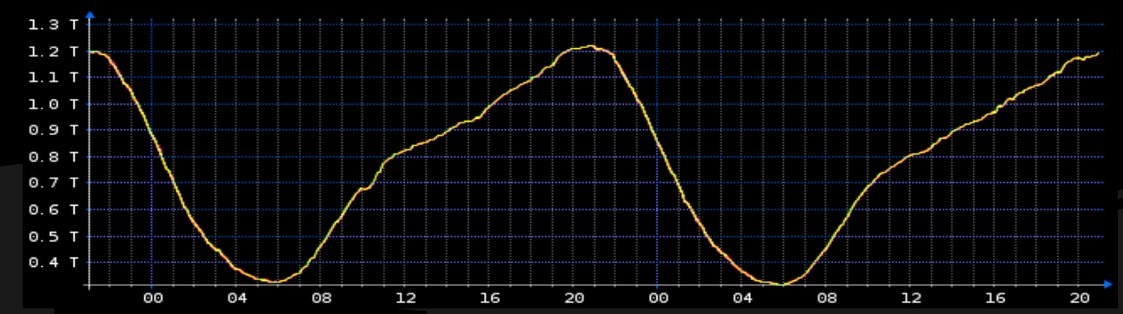
65% variance

Moscow



73% variance

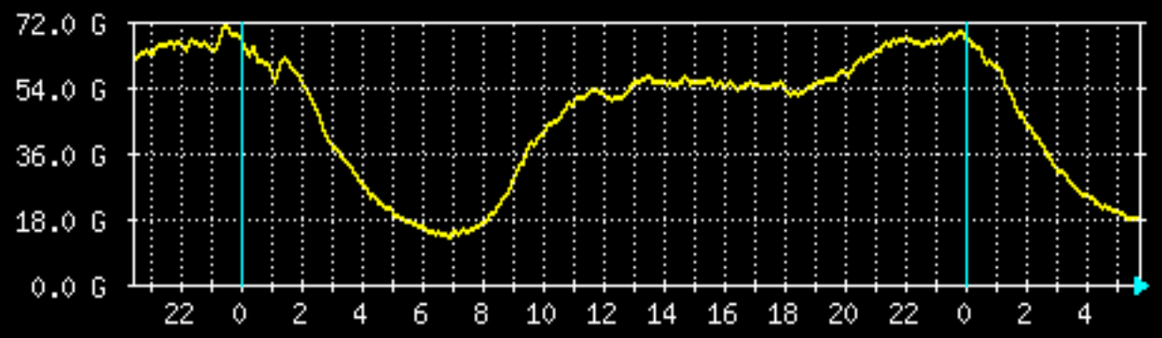
Amsterdam



75% variance

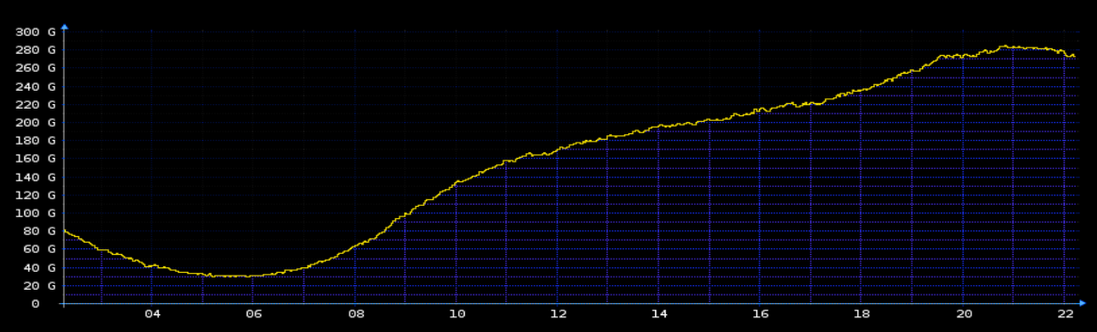
Degree of Diurnal Variance

Seoul



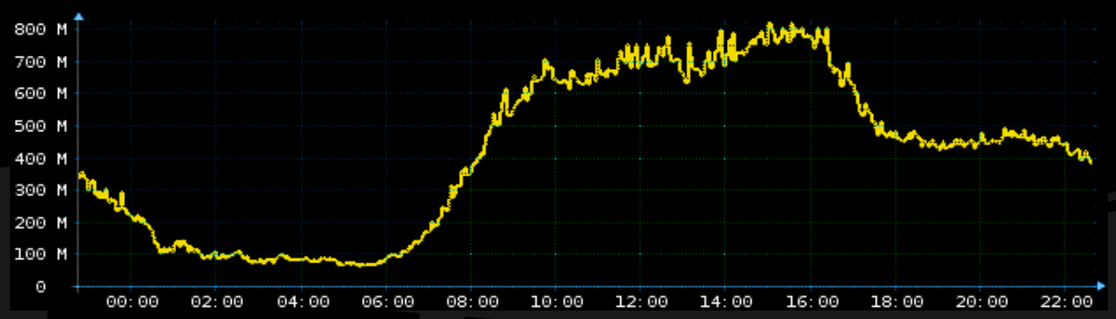
80% variance

Kiev



92% variance

Cape Town



97% variance

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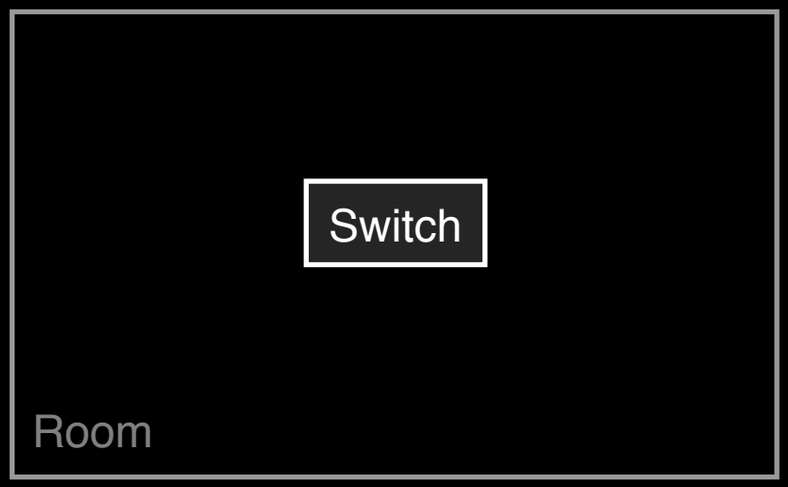
Growth of IXP Physical Plant



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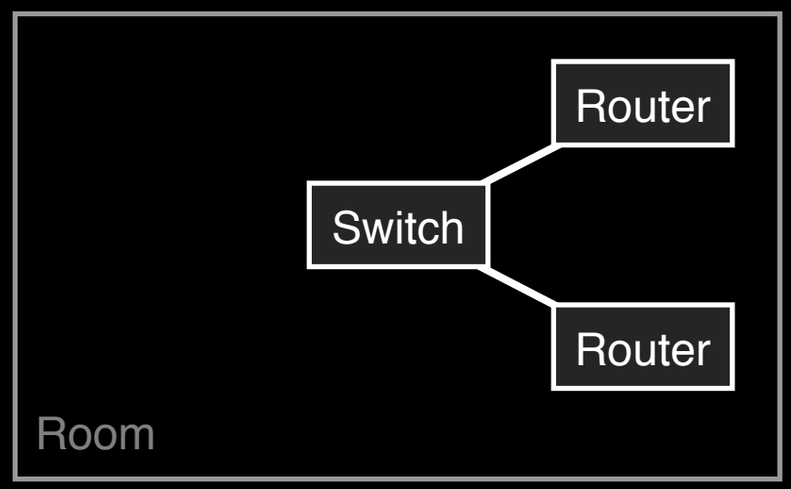
Growth of IXP Physical Plant



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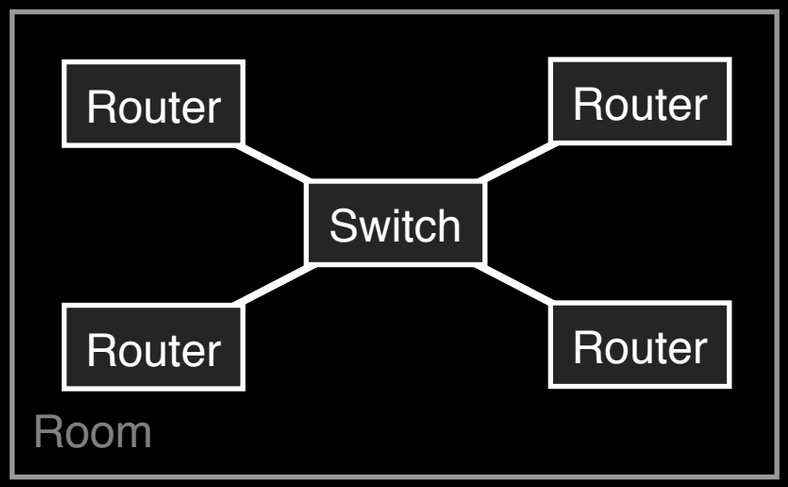
Growth of IXP Physical Plant



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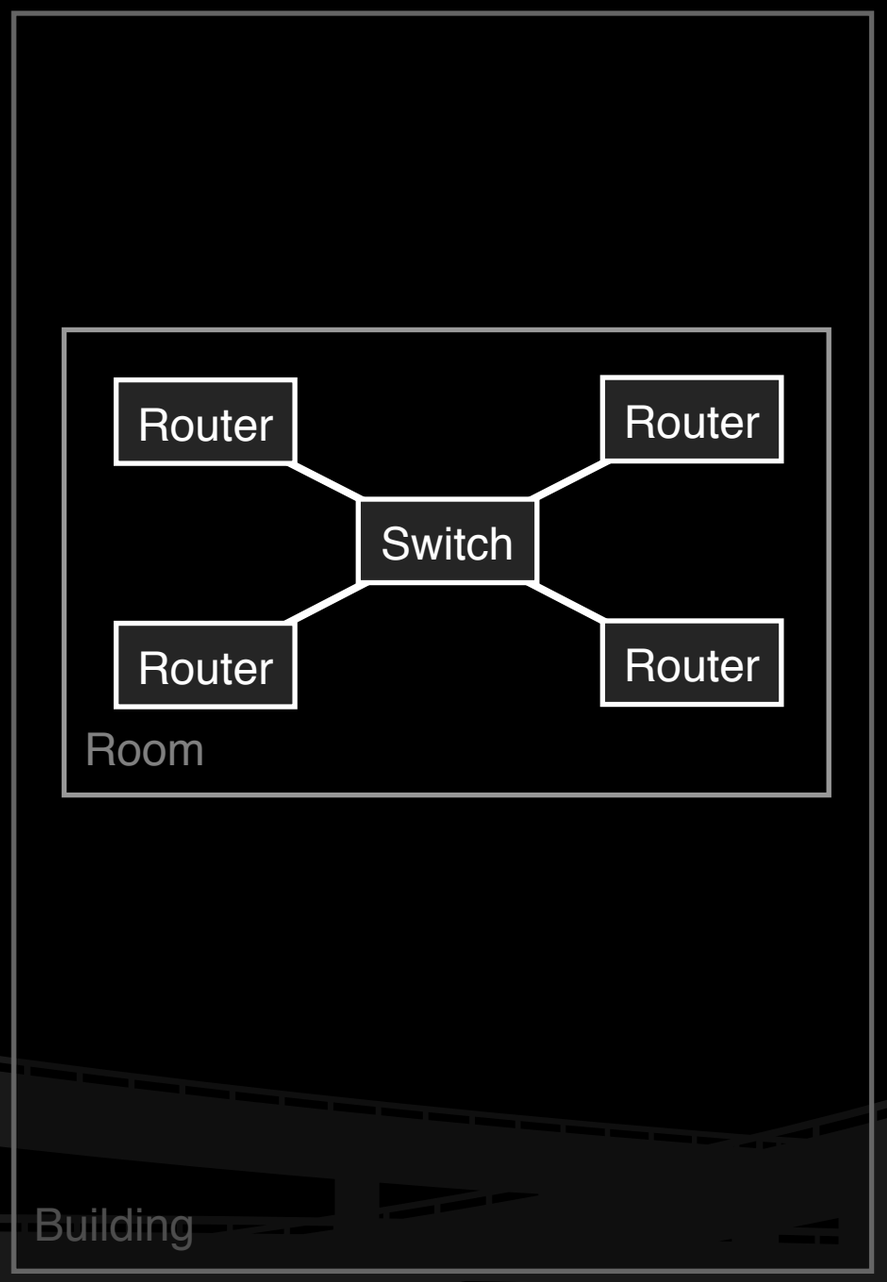
Growth of IXP Physical Plant



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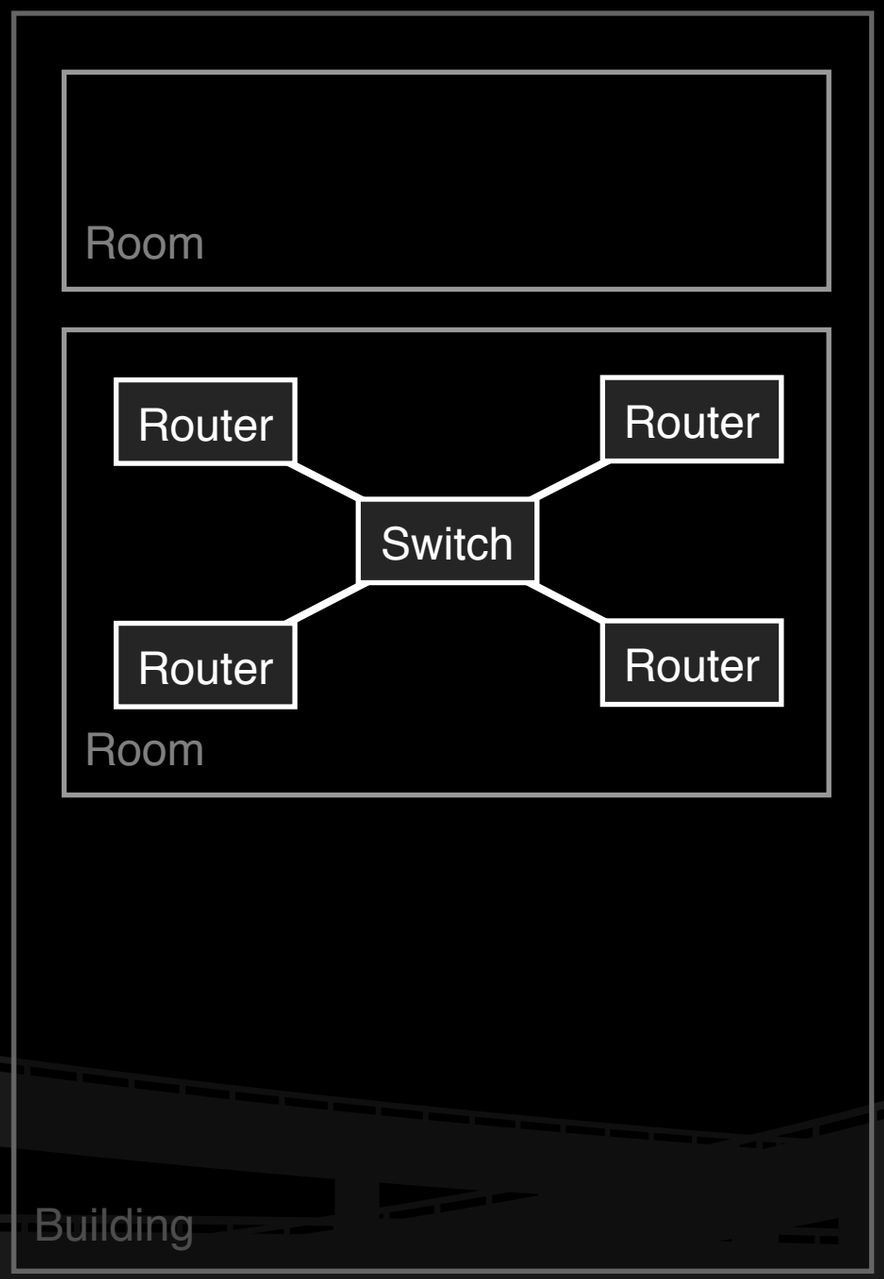
Growth of IXP Physical Plant



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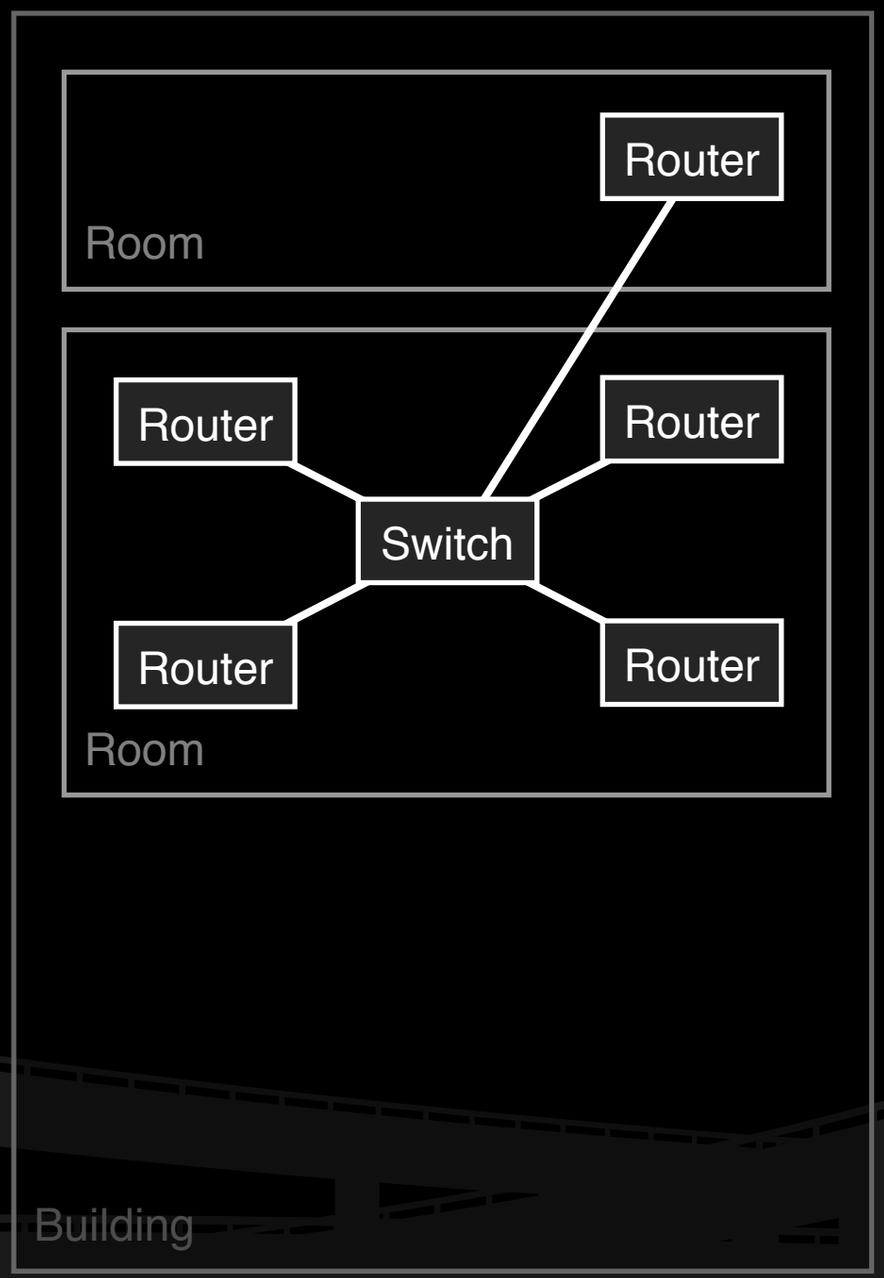
Growth of IXP Physical Plant



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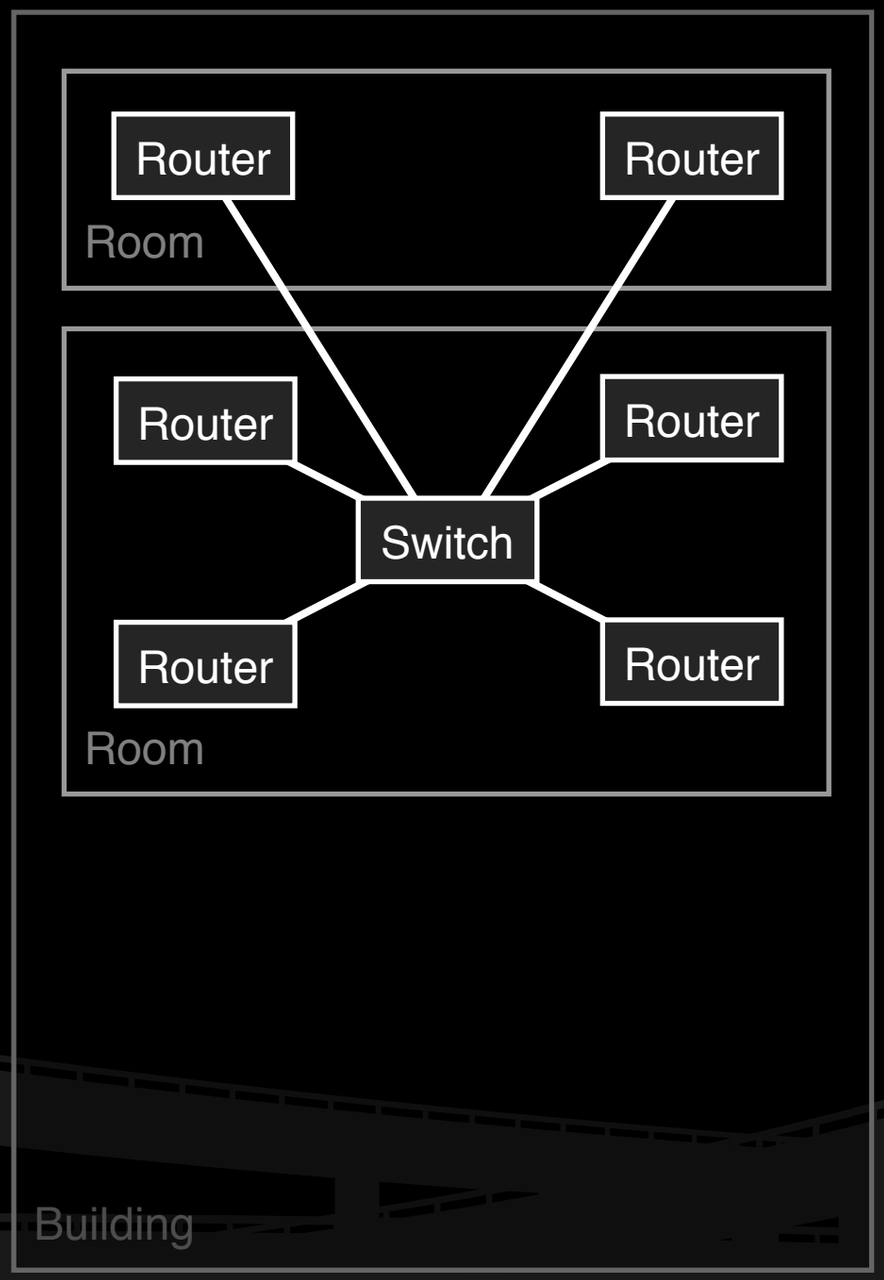
Growth of IXP Physical Plant



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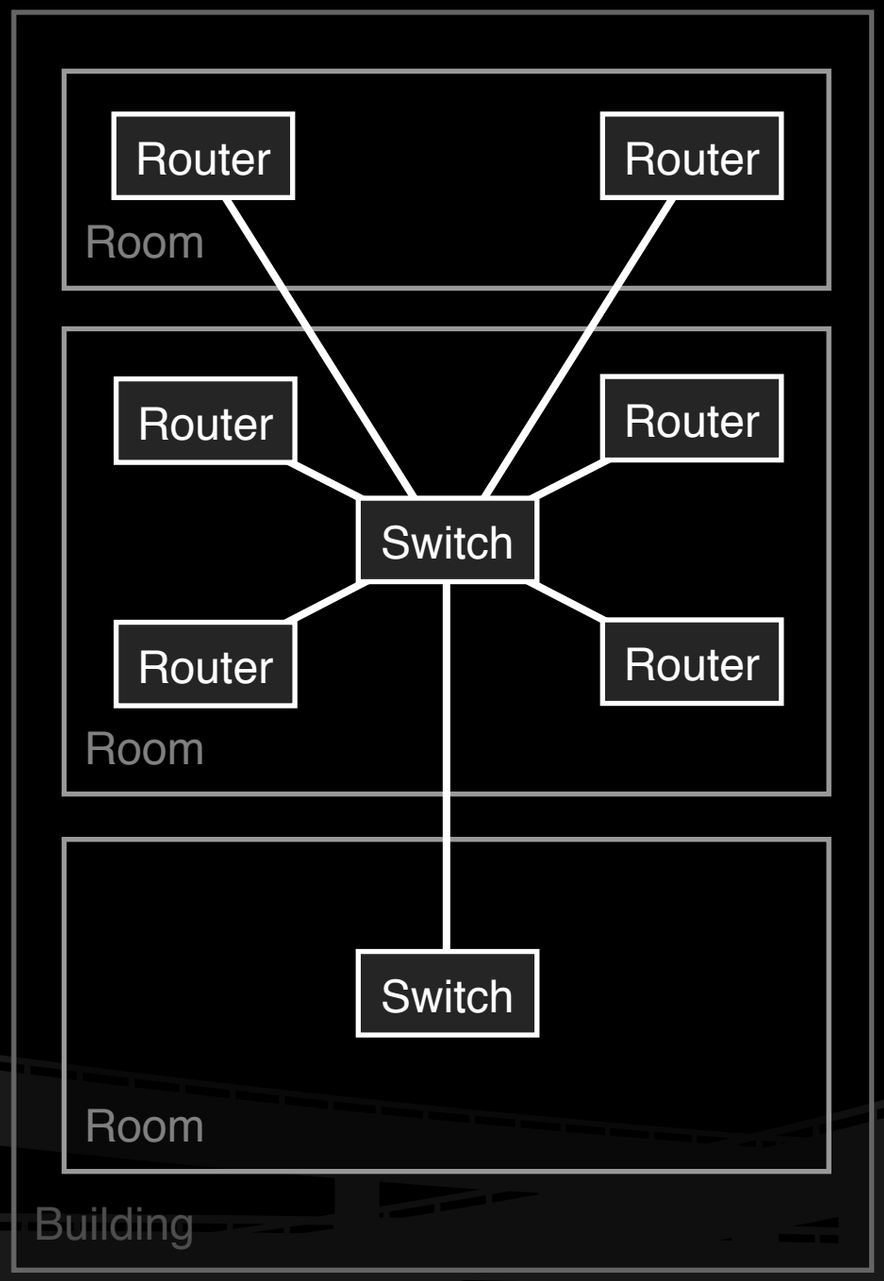
Growth of IXP Physical Plant



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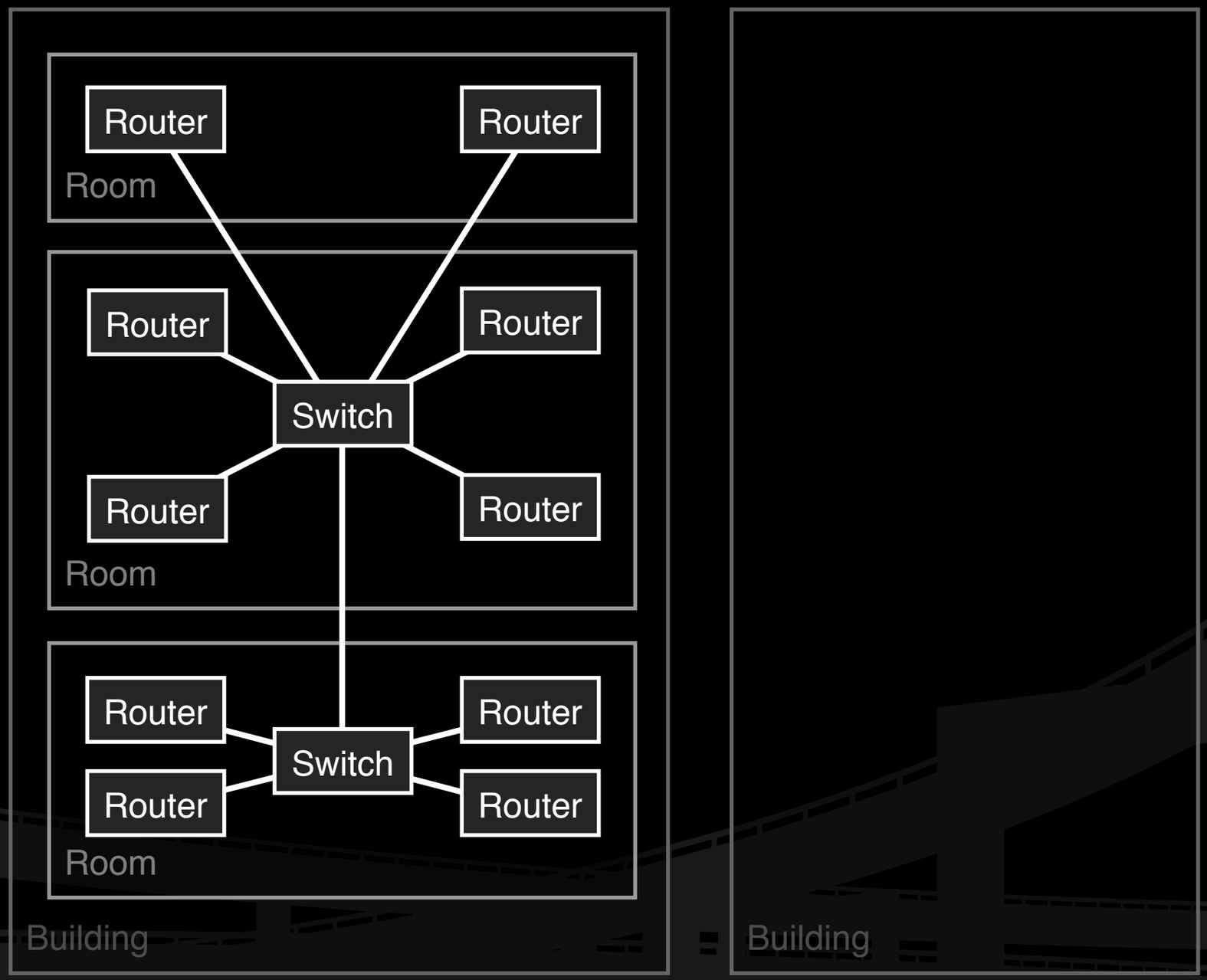
Growth of IXP Physical Plant



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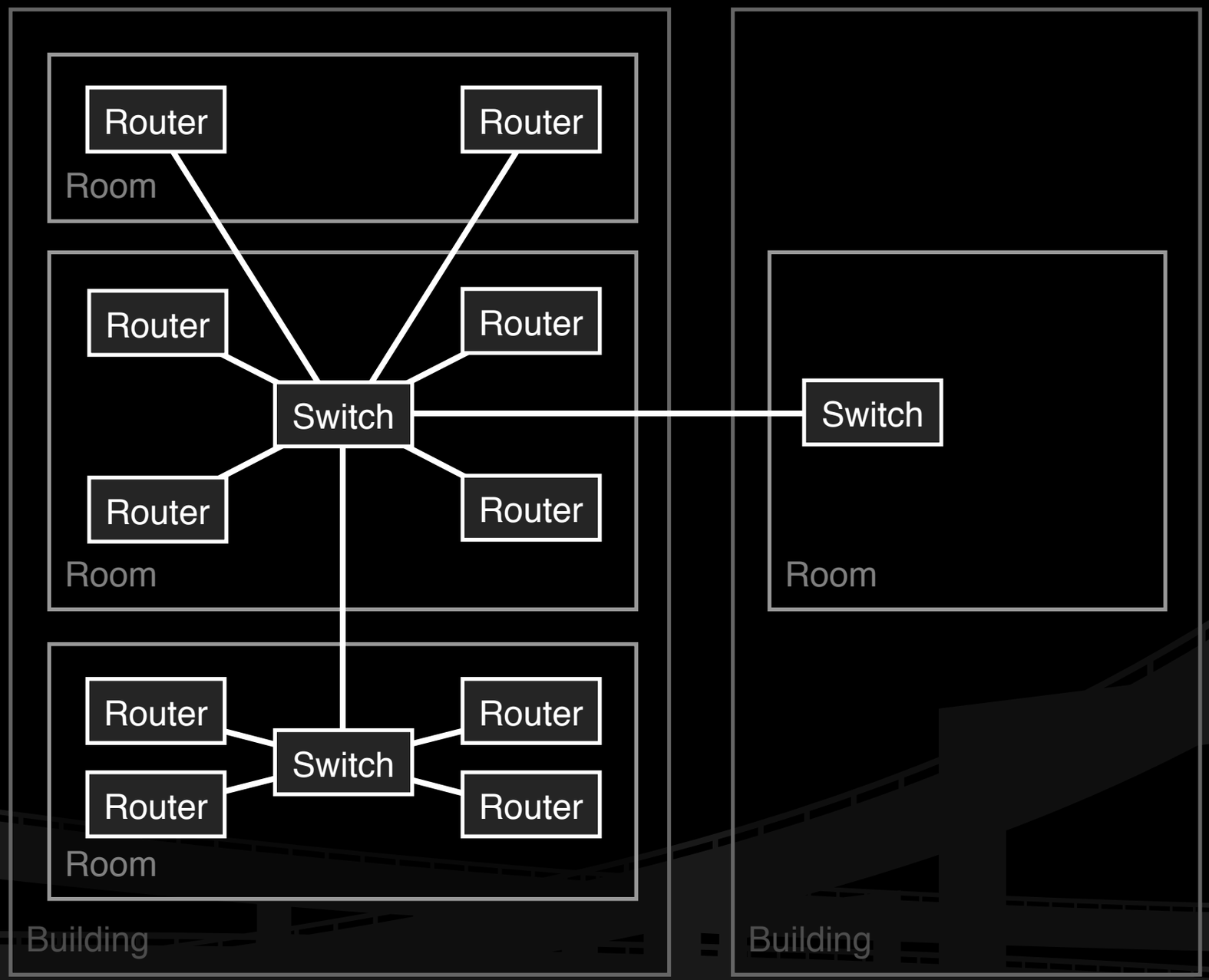
Growth of IXP Physical Plant



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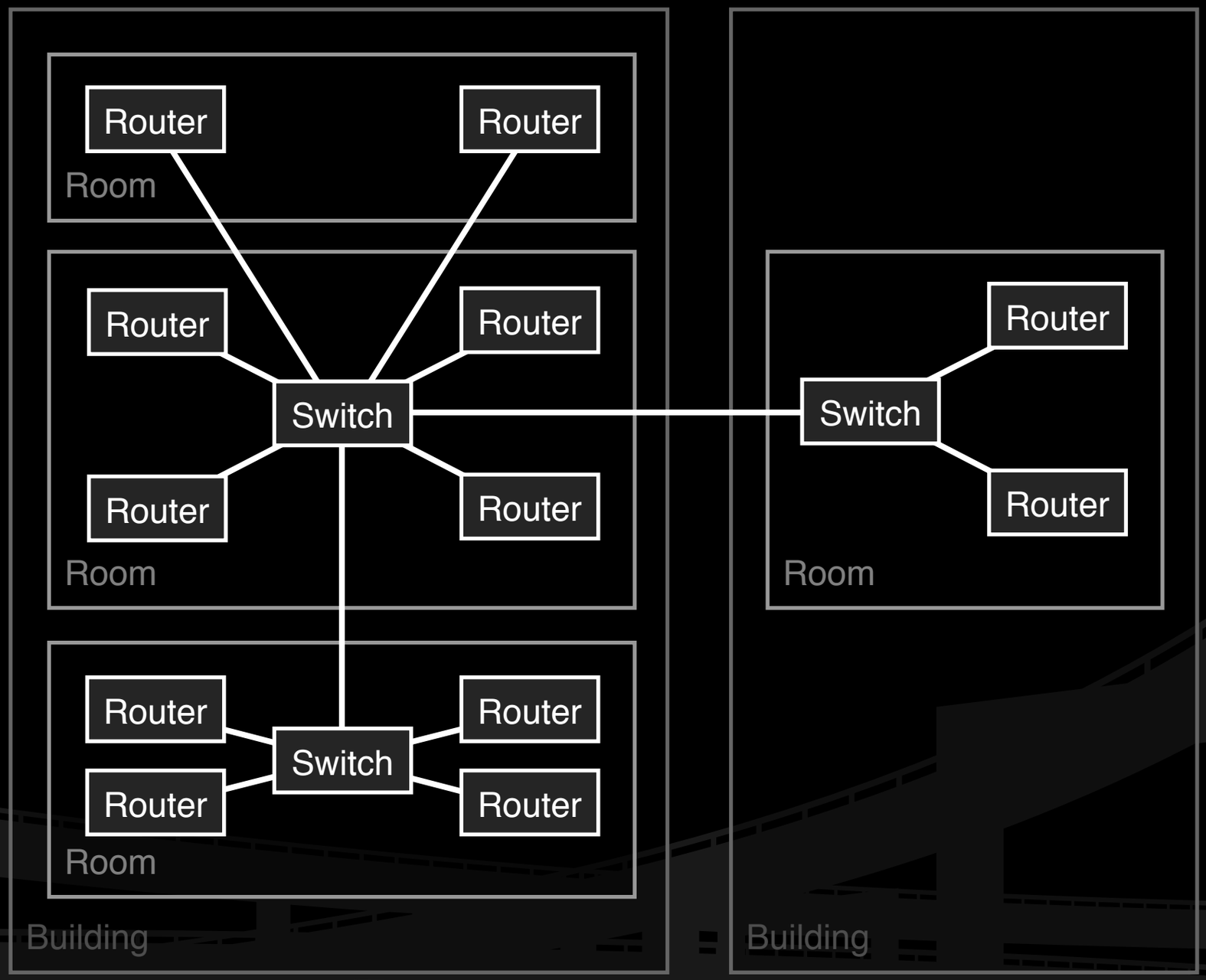
Growth of IXP Physical Plant



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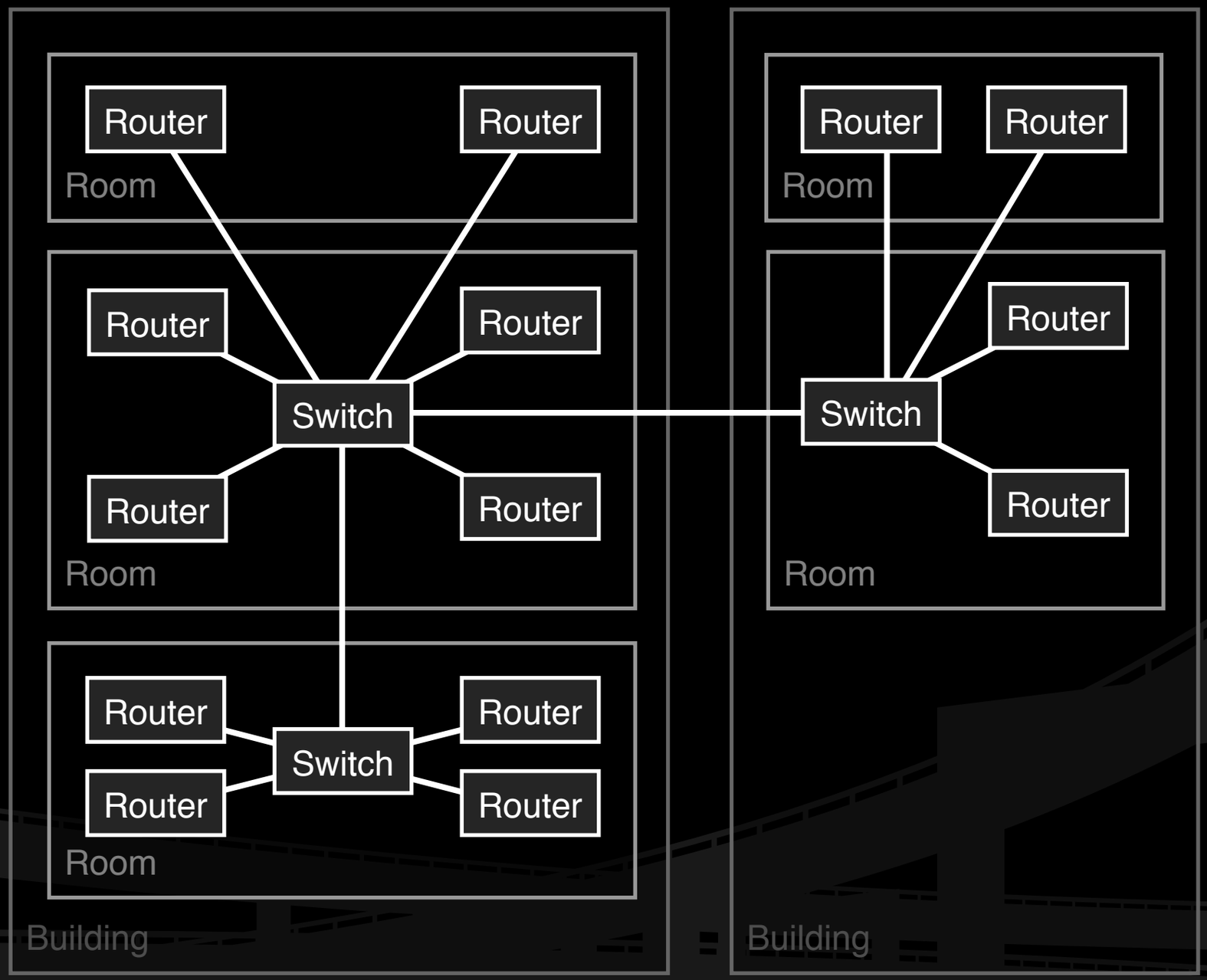
Growth of IXP Physical Plant



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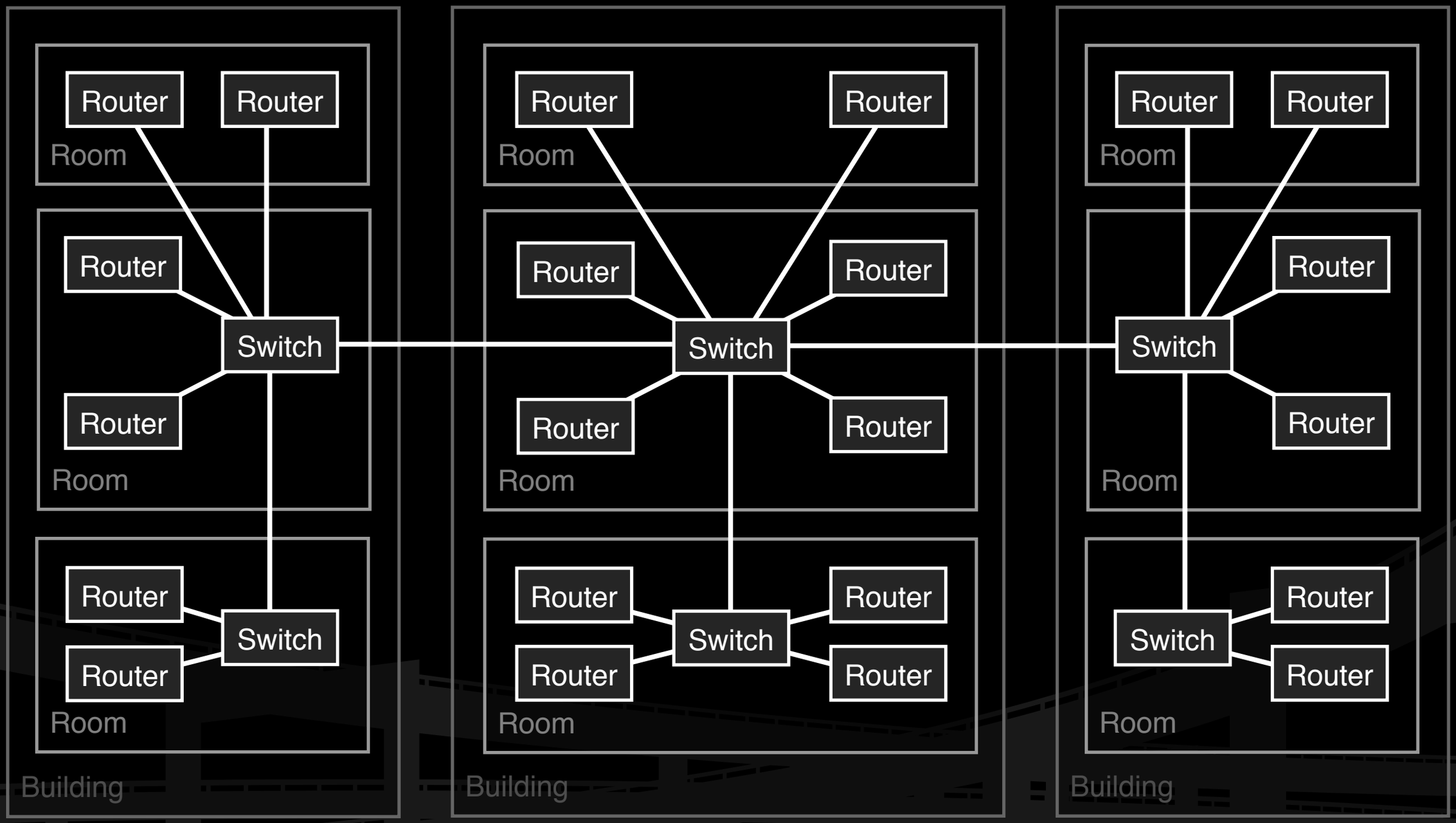
Growth of IXP Physical Plant



Thanks, and Questions?

Copies of this presentation can be found
in Keynote, PDF, QuickTime and PowerPoint formats at:

http:// www.pch.net / resources / papers

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Packet Clearing House
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