Small, Modular, Agile, Secure: Pick 4
Many components makes light work

Andrew Sullivan at ICANN 55
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Anycast is just good

- Good to sink traffic topologically close to source
- Lower latency for everyone without relying on round-trip time differences among nameservers in the NS RRset
- More resilient to attacks than traditional “unicast” operation
  - Gets more resilient the more BCP38 is deployed
- Maintenance of a nameserver does not mean an outage of a named nameserver
Collateral damage still possible

Common infrastructure or network (or both)

S1  
S2  
S3

Attack towards S1
Collateral damage still possible

Common infrastructure or network (or both)

Attack towards S1
Collateral damage still possible

Request for S3

Attack towards S1

Common infrastructure or network (or both)
Service isolation helps

Make a larger service out of small, readily-deployable components

• Small components are cheap and easy to replace
• Modular parts mean mix-and-match works
  • Unanticipated service needs easily supplied
• Easy modularity means change is fast
• Security profile of each component can be understood
  • Security problems can be contained or removed
Snap-together service starts easy
Snap-together service grows

Service in multiple container slices

Service interface
Snap-together service is flexible

Different containers → Service in multiple container slices → Service interface

Different service

service group
Snap-together service grows easily

Different containers

Different service

Service in multiple container slices

Service interface

Service group
Snap-together service: control

Different containers

Different service

Service in multiple container slices

Service interface

service group
controls budget
Security by resilience

Different containers

Different service

Service in multiple container slices

Service interface

Service group
Need more? Add them!

Different service

Different containers

Service in multiple container slices

Service interface

service group
Start small

Map image credit:
Not actual Dyn locations
Expand for demand

Map image credit: http://http://www.freeworldmaps.net
Not actual Dyn locations
Or turn up to meet flash crowds

Map image credit:
Not actual Dyn locations
Strategy not for everyone

You need an infrastructure approach to start with

- If you’re used to hand-building things, you have to completely change your operations
- If you have a couple of servers, then this won’t work
  - Consider a hybrid approach
- If you only have a single service, makes no sense to build for many
THANK YOU!

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