DSSA Update

Costa Rica – March, 2012

Goals for today

- Update you on our progress
- Raise awareness
- Solicit your input

Goals and Objectives

Report to respective participating SO's and AC's on:

- Actual level, frequency and severity of threats to the DNS
- Current efforts and activities to mitigate these threats to the DNS
- Gaps (if any) in the current response to DNS issues
- Possible additional risk mitigation activities that would assist in closing those gaps (if considered feasible and appropriate by the WG)

Activity since Singapore

- The working group has:
  - Developed a protocol for handling confidential information
  - Selected a methodology to structure the remaining work
  - Begun the detailed analysis of the risk assessment

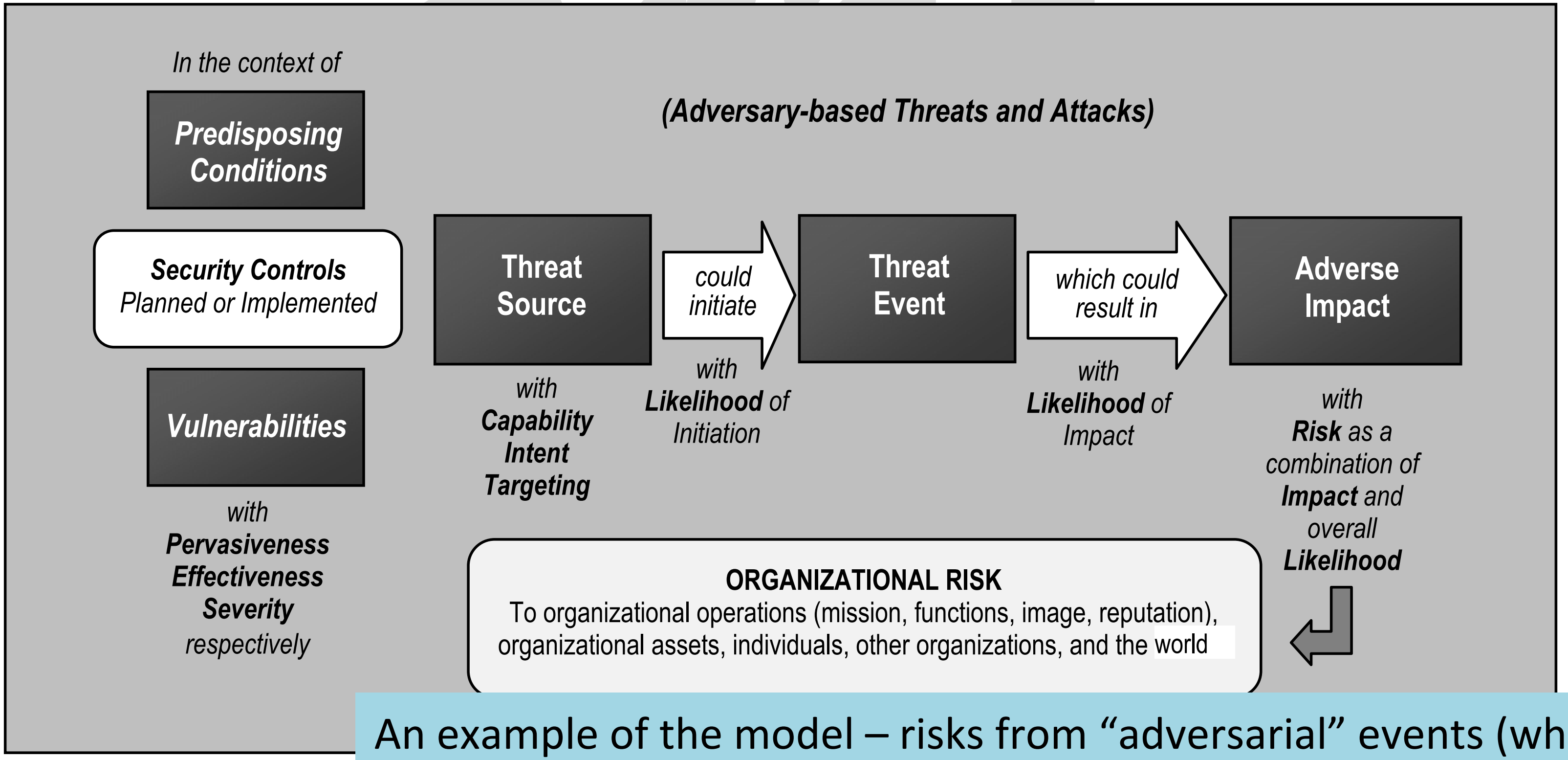
Methodology – NIST 800-30

Rationale

- The DSSA realized that using a predefined methodology would save time and improve our work product
- We selected NIST 800-30 after reviewing several dozen alternatives
- The reasons we selected this one include:
  - It's available at no cost
  - It's being actively supported and maintained
  - It's widely known and supported in the community
  - It's likely to be consistent with the needs of other parts of ICANN (and thus our pioneering may produce something that can be "repurposed" elsewhere in the organization)
  - It's available in English

Methodology – NIST 800-30

Adversarial Risk Model



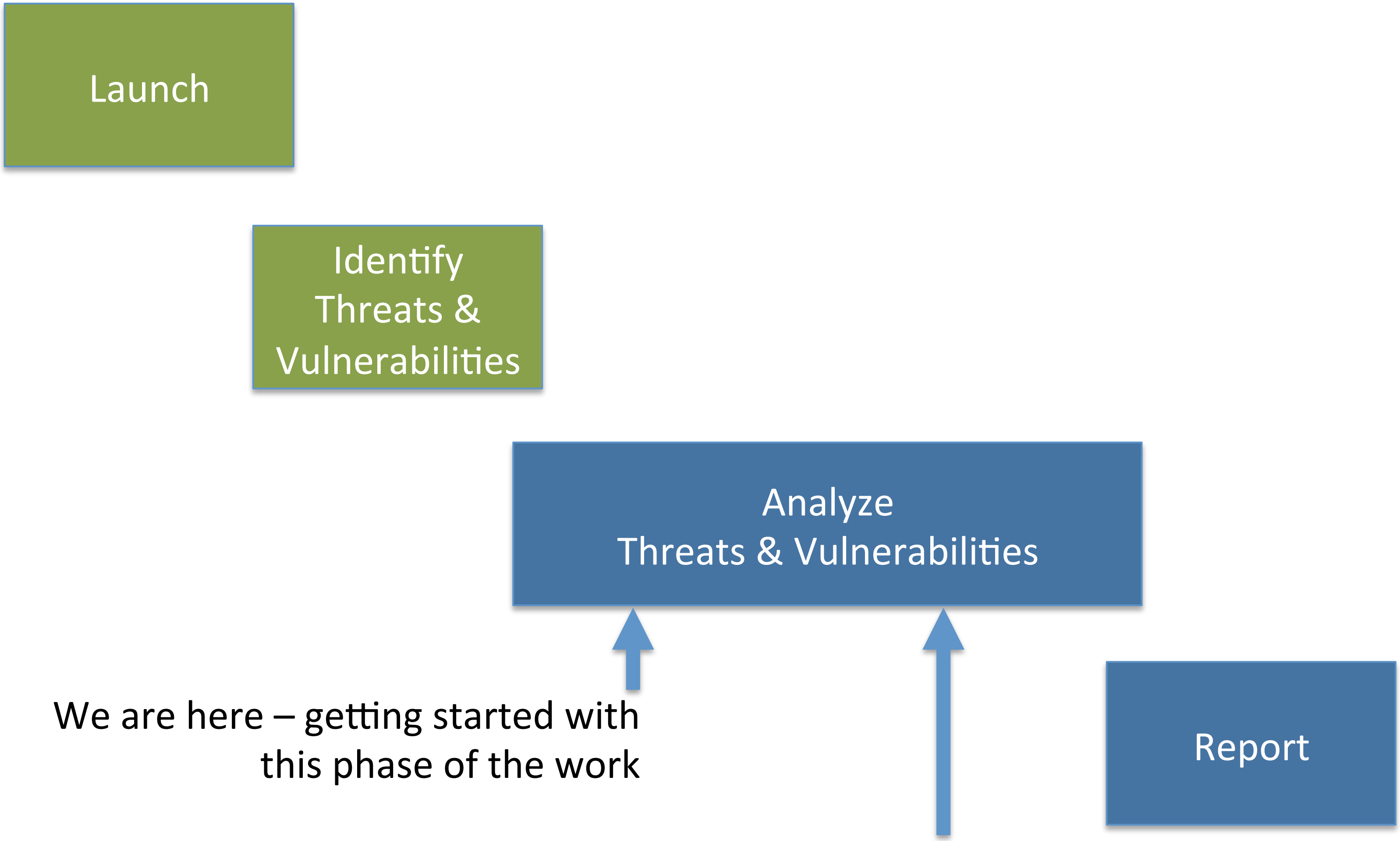
An example of the model – risks from "adversarial" events (which differs from "non-adversarial" threats such as errors, accidents, etc.)

Benefits:

- Consistent terminology
- Shared model
- Structured work
- Sample deliverables

Where we are…

Approach and status



Launch

Identify Threats & Vulnerabilities

Analyze Threats & Vulnerabilities

Report

We are here – getting started with this phase of the work

We are hoping to have a substantial portion of this done by Prague

Where we are and where we're going

Analysis phase – based on tailored NIST methods

Assess threat events

We have concluded that there are three threat-events:

- **Zone does not resolve**
- **Zone is incorrect**
- **Zone security is compromised**

Determine level of impact

In the worst case there would be broad harm/consequence/impact to operations, assets, individuals, other organizations and the world if any of these threat-events occur. And in all cases there would be significant problems for registrants and users **in the zone.**

Assess vulnerabilities, controls and predisposing conditions

- Vulnerabilities – are they severe and widespread?
- Predisposing conditions – are they pervasive?
- Controls and mitigation – are they effective and deployed?

Determine likelihood

- Threat sources – how broad is range of impact, what are their capabilities, how strong is their intent, are they targeting the DNS?
- Initiation – what is the likelihood that a threat-event will happen?

Determine risk

Given all of the above – what are the high-risk scenarios?

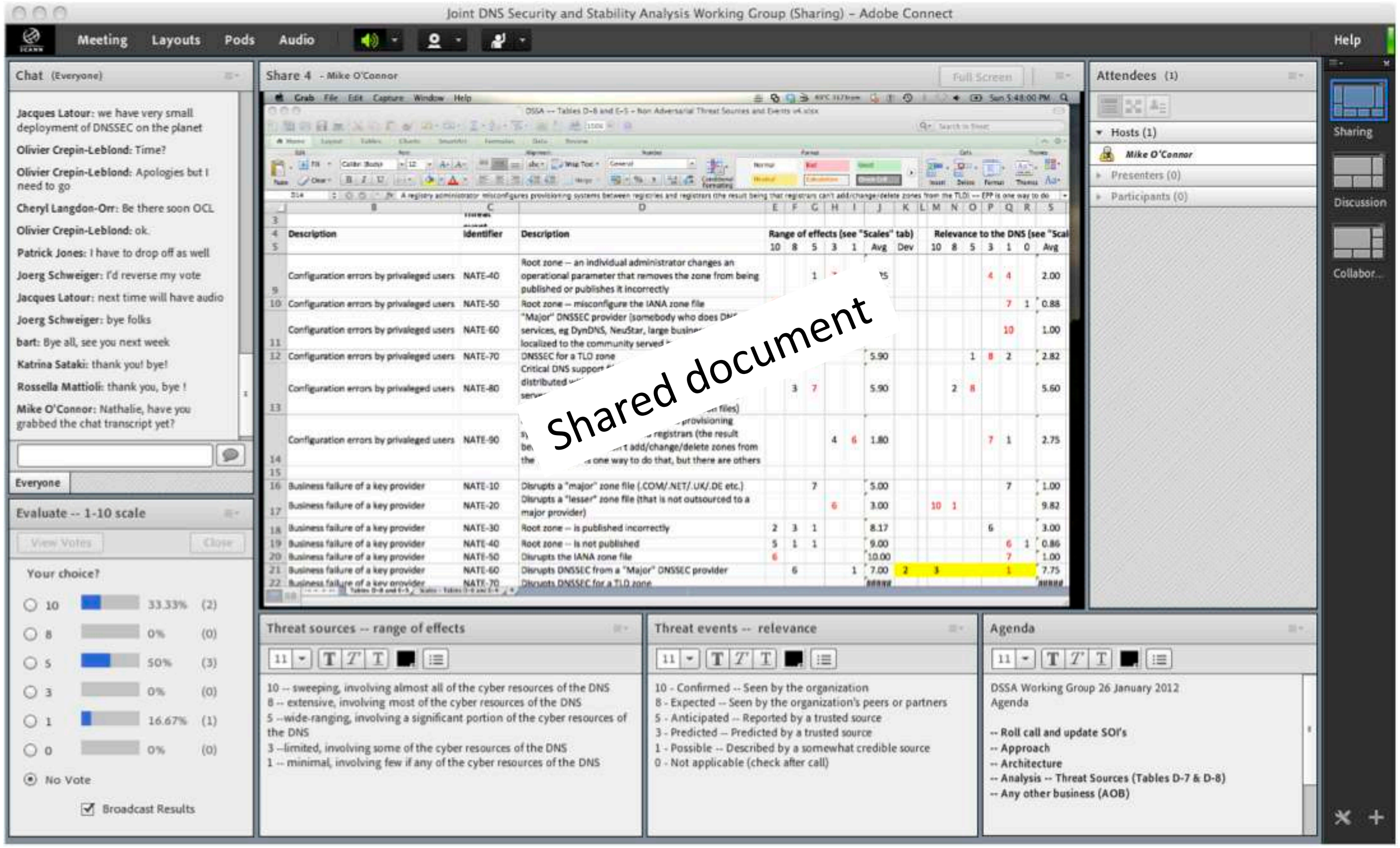
How we work

(design credit -- CLO)

Live chat

Participants

Polling



Chat (Everyone)

Jacques Latour: we have very small deployment of DNSSEC on the planet

Olivier Crepin-Leblond: Time?

Olivier Crepin-Leblond: Apologies but I need to go

Cheryl Langdon-Orr: Be there soon OCL

Olivier Crepin-Leblond: ok

Patrick Jones: I have to drop off as well

Joerg Schweiger: I'd reverse my vote

Jacques Latour: next time will have audio

Joerg Schweiger: bye folks

bart: Bye all, see you next week

Katrina Sataki: thank you! bye!

Rossella Mattioli: thank you, bye !

Mike O'Connor: Nathalie, have you grabbed the chat transcript yet?

Everyone

Evaluate -- 1-10 scale

View Votes   Close

Your choice?

○ 10	33.33%	(2)
○ 8	0%	(0)
○ 5	50%	(3)
○ 3	0%	(0)
○ 1	16.67%	(1)
○ 0	0%	(0)
● No Vote		

☑ Broadcast Results

DSSA -- Tables D-8 and E-5 -- Non Adversarial Threat Sources and Events v4.xlsx

D14 A registry administrator misconfigures provisioning systems between registries and registrars (the result being that registrars can't add/change/delete zones from the TLD) -- EPP is one way to do

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
3		Threat event																
4	Description	Identifier	Description	Range of effects (see "Scales" tab)								Relevance to the DNS (see "Scal						
5				10	8	5	3	1	Avg	Dev		10	8	5	3	1	0	Avg
9	Configuration errors by privaleged users	NATE-40	Root zone -- an individual administrator changes an operational parameter that removes the zone from being published or publishes it incorrectly			1	[illegible]		[illegible]5						4	4		2.00
10	Configuration errors by privaleged users	NATE-50	Root zone -- misconfigure the IANA zone file	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]							7	1	0.88
11	Configuration errors by privaleged users	NATE-60	"Major" DNSSEC provider (somebody who does DN[illegible] services, eg DynDNS, NeuStar, large busine[illegible] localized to the community served [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]							10		1.00
12	Configuration errors by privaleged users	NATE-70	DNSSEC for a TLD zone	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.90					1	8	2		2.82
13	Configuration errors by privaleged users	NATE-80	Critical DNS support [illegible] distributed [illegible] serv[illegible] files)		3	7			5.90				2	8				5.60
14	Configuration errors by privaleged users	NATE-90	[illegible] provisioning sy[illegible] registrars (the result be[illegible]t add/change/delete zones from the [illegible] one way to do that, but there are others				4	6	1.80						7	1		2.75
15																		
16	Business failure of a key provider	NATE-10	Disrupts a "major" zone file (.COM/.NET/.UK/.DE etc.)			7			5.00							7		1.00
17	Business failure of a key provider	NATE-20	Disrupts a "lesser" zone file (that is not outsourced to a major provider)				6		3.00			10	1					9.82
18	Business failure of a key provider	NATE-30	Root zone -- is published incorrectly	2	3	1			8.17						6			3.00
19	Business failure of a key provider	NATE-40	Root zone -- is not published	5	1	1			9.00							6	1	0.86
20	Business failure of a key provider	NATE-50	Disrupts the IANA zone file	6					10.00							7		1.00
21	Business failure of a key provider	NATE-60	Disrupts DNSSEC from a "Major" DNSSEC provider		6			1	7.00	2		3				1		7.75
22	Business failure of a key provider	NATE-70	Disrupts DNSSEC for a TLD zone						#####									#####

Attendees (1)

- Hosts (1)
  - Mike O'Connor
- Presenters (0)
- Participants (0)

Threat sources -- range of effects

10 -- sweeping, involving almost all of the cyber resources of the DNS
8 -- extensive, involving most of the cyber resources of the DNS
5 --wide-ranging, involving a significant portion of the cyber resources of the DNS
3 --limited, involving some of the cyber resources of the DNS
1 -- minimal, involving few if any of the cyber resources of the DNS

Threat events -- relevance

10 - Confirmed -- Seen by the organization
8 - Expected -- Seen by the organization's peers or partners
5 - Anticipated -- Reported by a trusted source
3 - Predicted -- Predicted by a trusted source
1 - Possible -- Described by a somewhat credible source
0 - Not applicable (check after call)

Agenda

DSSA Working Group 26 January 2012
Agenda

-- Roll call and update SOI's
-- Approach
-- Architecture
-- Analysis -- Threat Sources (Tables D-7 & D-8)
-- Any other business (AOB)

Definitions

Agenda

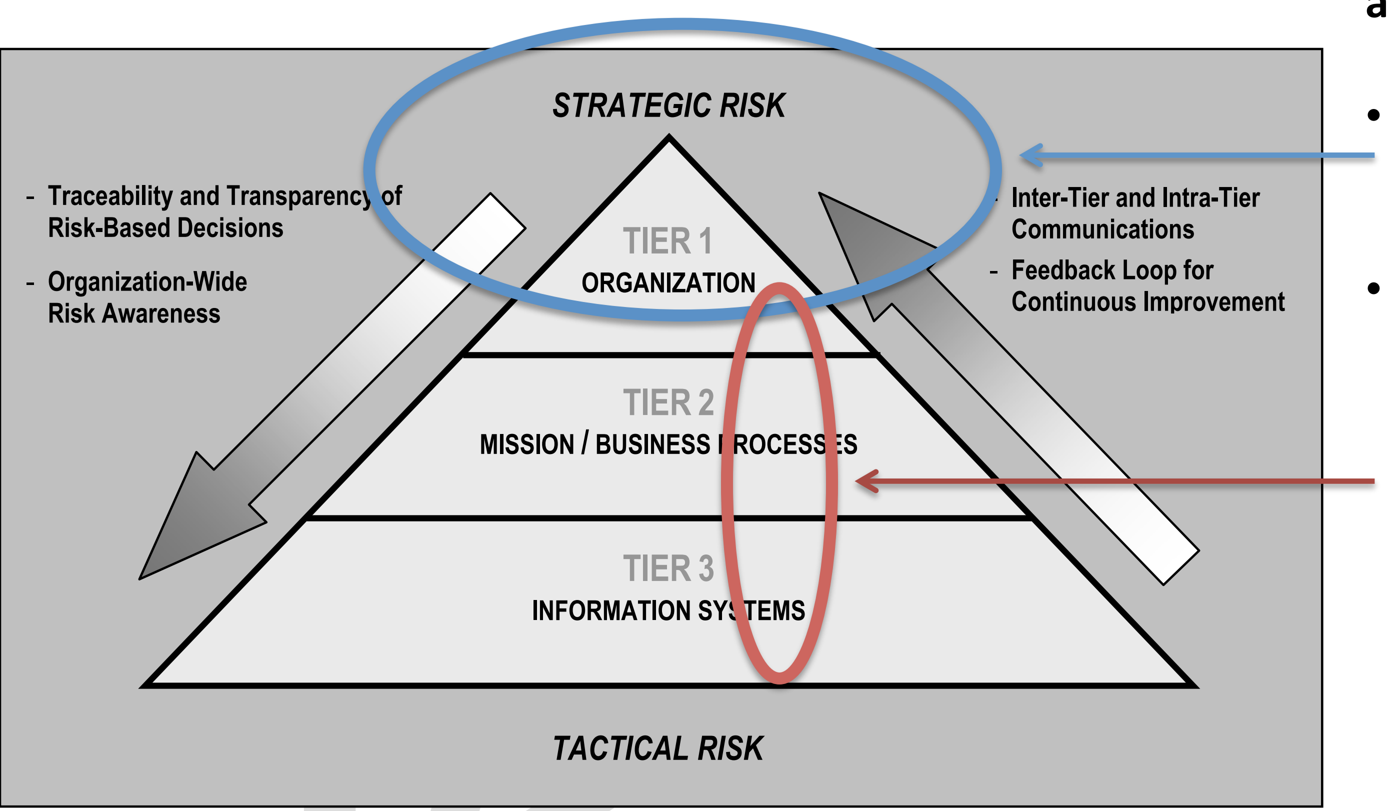
Questions?

Charter: Background

- At their meetings during the ICANN Brussels meeting the At-Large Advisory Committee (ALAC), the Country Code Names Supporting Organization (ccNSO), the Generic Names Supporting Organization (GNSO), the Governmental Advisory Committee (GAC), and the Number Resource Organization (NROs) acknowledged the need for a better understanding of the security and stability of the global domain name system (DNS). This is considered to be of common interest to the participating Supporting Organisations (SOs), Advisory Committees (ACs) and others, and should be preferably undertaken in a collaborative effort.

Methodology – NIST 800-30

Risk Management Hierarchy

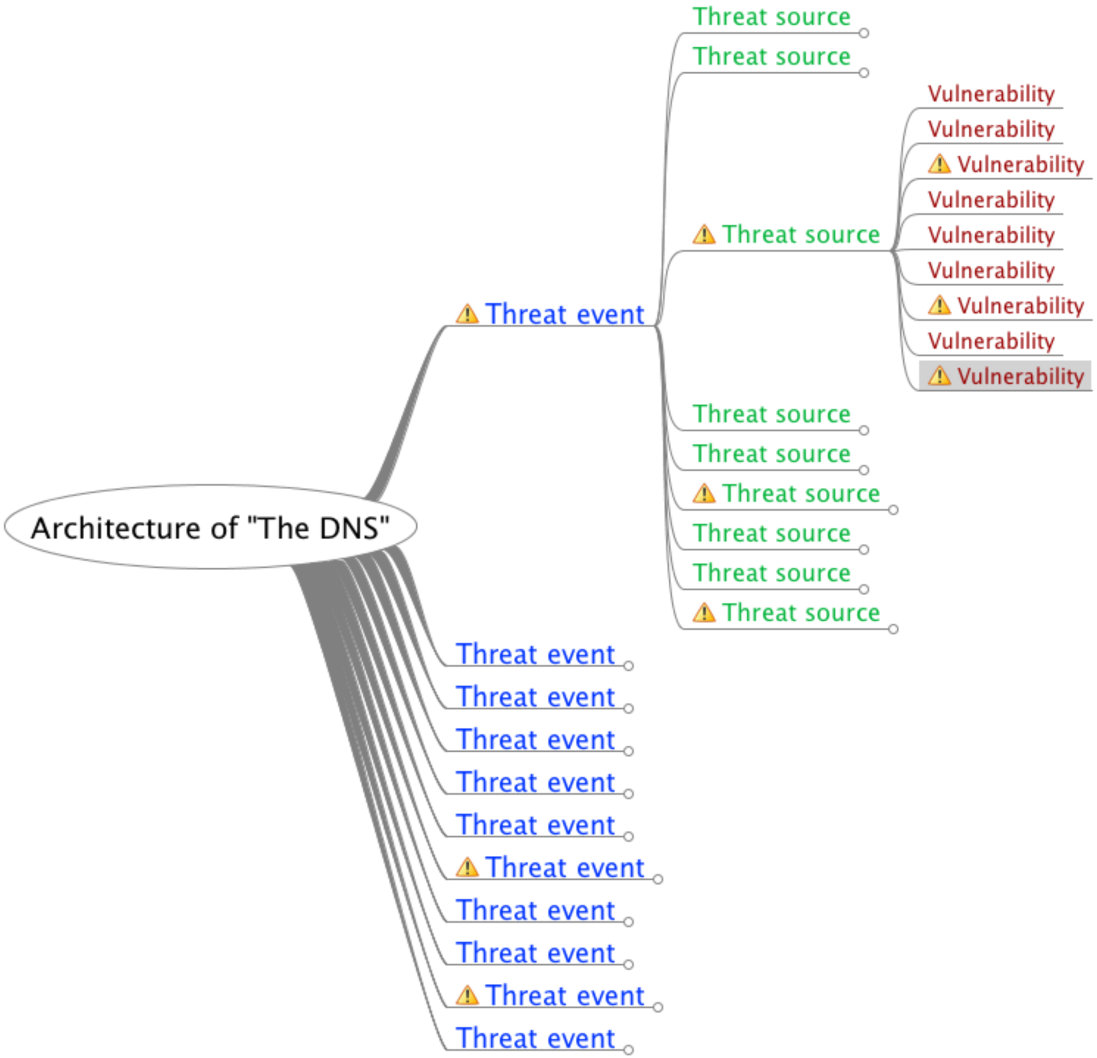

STRATEGIC RISK
- Traceability and Transparency of Risk-Based Decisions
- Organization-Wide Risk Awareness
TIER 1
ORGANIZATION
TIER 2
MISSION / BUSINESS PROCESSES
TIER 3
INFORMATION SYSTEMS
- Inter-Tier and Intra-Tier Communications
- Feedback Loop for Continuous Improvement
TACTICAL RISK

The methodology presumes a tiered approach to the work

- DSSA is chartered to look at the broadest, most general tier
- However we feel it may be useful to pursue one or two deeper, narrower analyses of specific threats once our "survey" work is complete

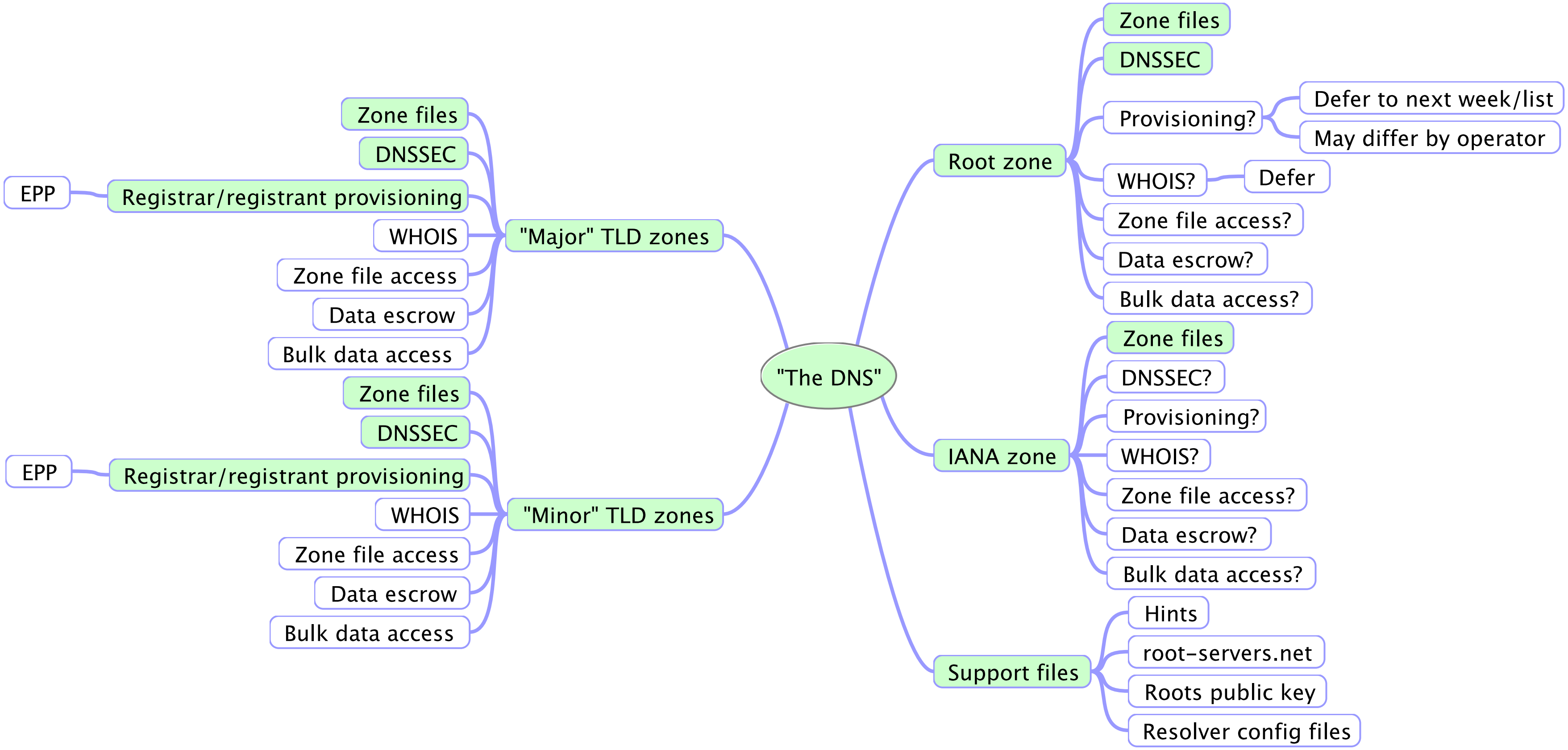
Problem: the evaluation per NIST methodology does not scale

It’s all about choices

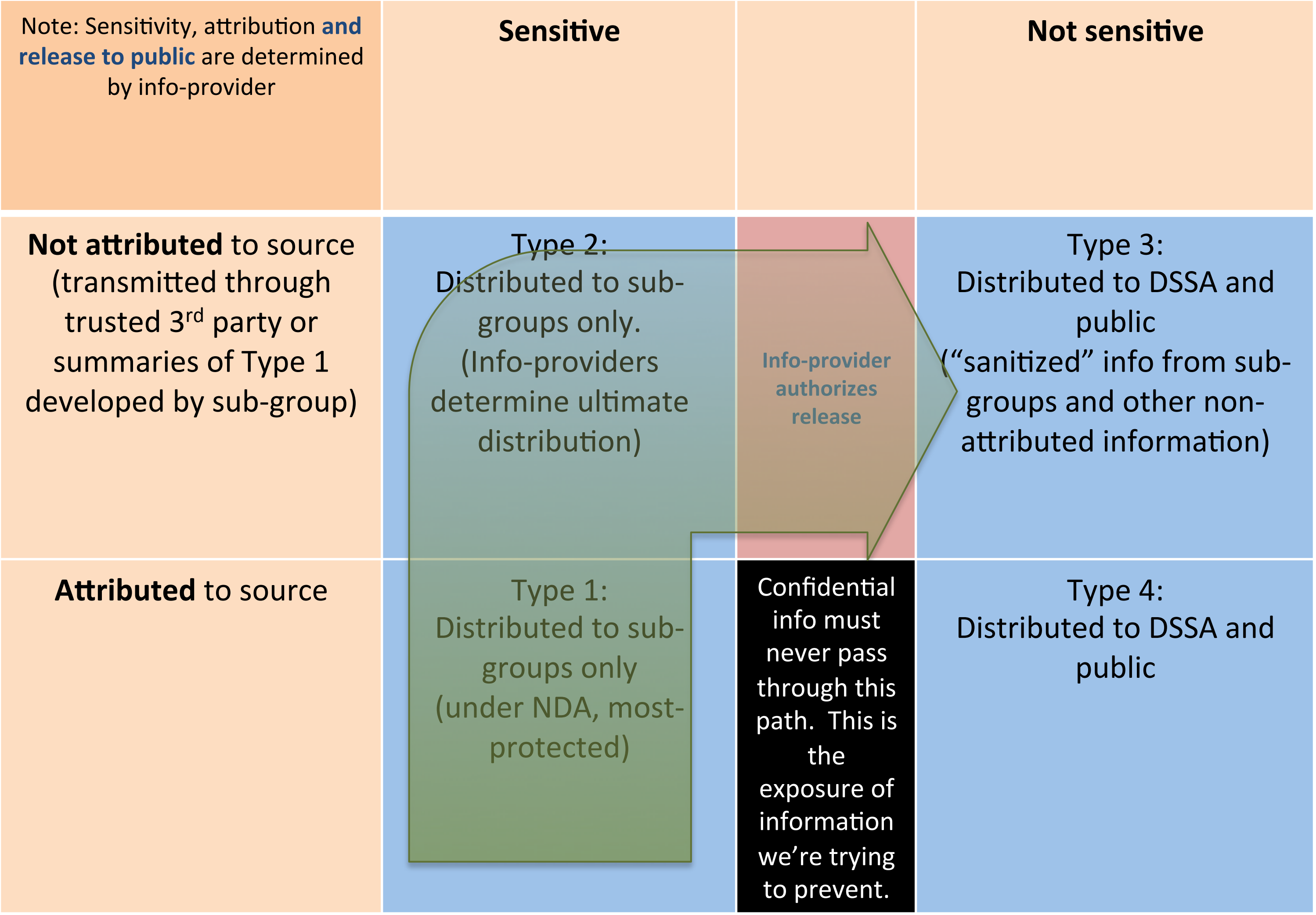


- Threat tree could easily grow to over 1000 permutations
- Prune the tree along the way, in order to focus on the highest risks
- Leave a framework that can be used to address:
  - New things
  - Changes
  - Greater detail

Architecture



Confidential information



Note: Sensitivity, attribution **and release to public** are determined by info-provider	**Sensitive**		**Not sensitive**
Not attributed to source (transmitted through trusted 3rd party or summaries of Type 1 developed by sub-group)	Type 2: Distributed to sub-groups only. (Info-providers determine ultimate distribution)	**Info-provider authorizes release**	Type 3: Distributed to DSSA and public (“sanitized” info from sub-groups and other non-attributed information)
Attributed to source	Type 1: Distributed to sub-groups only (under NDA, most-protected)	Confidential info must never pass through this path. This is the exposure of information we’re trying to prevent.	Type 4: Distributed to DSSA and public