

# DNS RESILIENCE MODEL - OVERVIEW

OBJECTIVES

**SYSTEM OBJECTIVES:**  
AVAILABILITY,  
CONSISTENCY,  
INTEGRITY

IDIOSYNCRATIC RISK

HAZARD

OPPORTUNITY COST

SYSTEMATIC RISK

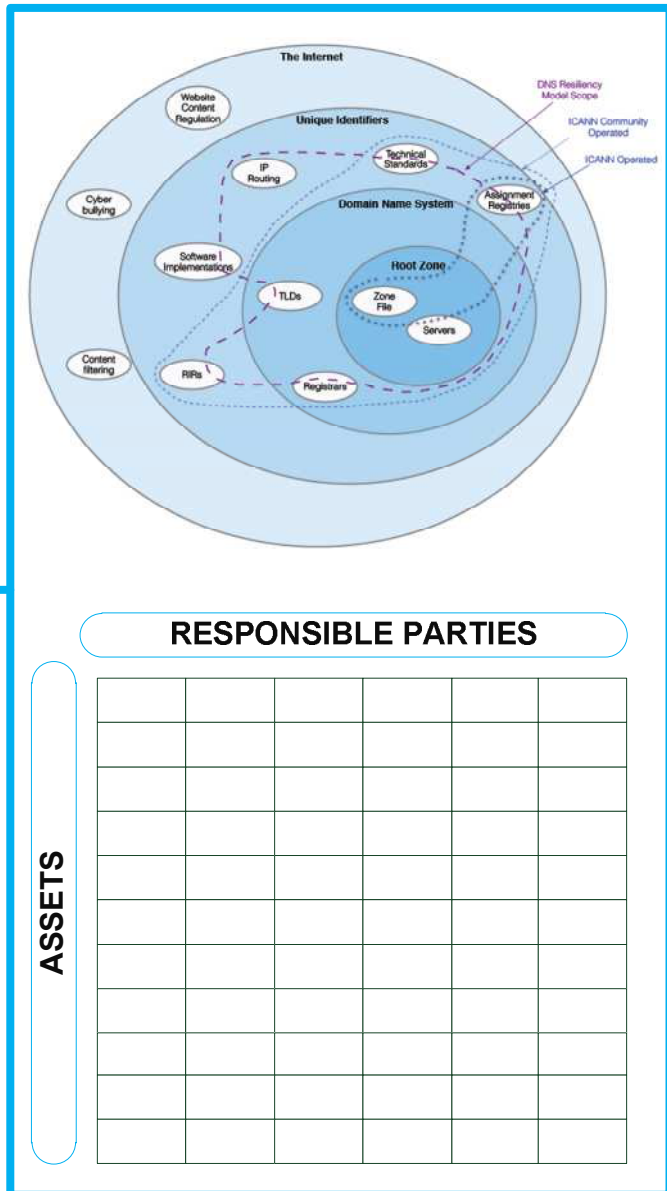
HAZARD

OPPORTUNITY COST

LEVEL 1

LEVEL 2

SYSTEMIC AMPLIFIERS / ATTENUATORS  
(CONDITIONING, CONSTRAINING, ENABLING)



A. SYSTEMS & NETWORKS

B. INFORMATION ASSETS

C. IT EQUIPMENT, SERVICE PROVIDERS

D. PEOPLE

E. PHYSICAL

F. PROGRAM

G. INNOVATION

- 1. Denial Of Service
- 2. IP Transition
- 3. DNS Resolving
- 4. Software Corruption
- 5. Cryptographic Key Compromise
- 6. Cache Poisoning
- 7. Response Modification
- 8. Route Leakage
- 9. Route Interception
- 10. Hardware Failure
- 11. Business Disruption / Systems Failure
- 12. Registration Services Performance
- 13. Root / TLD Operator Performance
- 14. IANA / ICANN Service Disruption
- 15. Technology Vendor Failure
- 16. Root Operator Coercion
- 17. Fraud
- 18. Root / TLD attack
- 19. Physical Damage to (DNS) Physical or Digital Assets
- 20. IDN gTLD Delegation
- 21. Technical / Policy conflict
- 22. Technical
- 23. Business Model

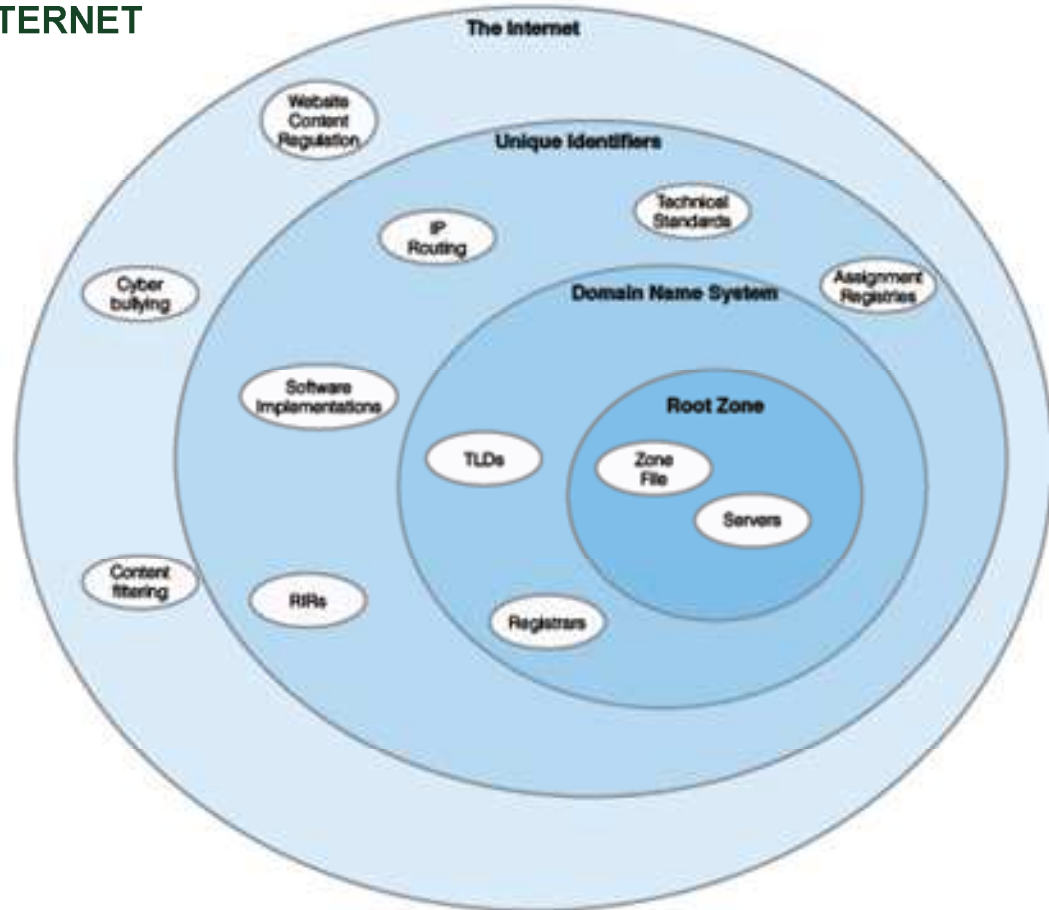
- 1. SCIENTIFIC UNKNOWNNS
- 2. LOSS OF SAFETY MARGINS
- 3. POSITIVE FEEDBACK
- 4. VARYING SUSCEPTIBILITIES TO RISK
- 5. CONFLICTS ABOUT INTERESTS, VALUES, SCIENCE
- 6. SOCIAL DYNAMICS
- 7. TECHNOLOGICAL ADVANCES
- 8. TEMPORAL COMPLICATIONS
- 9. COMMUNICATION
- 10. INFORMATION ASYMMETRIES
- 11. PERVERSE INCENTIVES
- 12. MALICIOUS MOTIVES AND ACTS

ASSETS (Illustrative only. Not exhaustive)		RESPONSIBLE PARTIES (Illustrative only. Not exhaustive)				
		ICANN	TLD Managers	Governments	Companies	Etc.
<b>Root Servers</b>	L - Root	<b>X</b>				
	A - Root			<b>X</b>		
	↓					
<b>TLDs</b>	.Typically large TLD		<b>X</b>			
<b>(Size)</b>	.Typically smaller TLDs		<b>X</b>			
	.gov		<b>X</b>	<b>X</b>		
	.ccTLD A		<b>X</b>			
	.ccTLD B		<b>X</b>			
	.Brand TLDs		<b>X</b>			
	.IDN TLDs		<b>X</b>	<b>X</b>		
	↓					

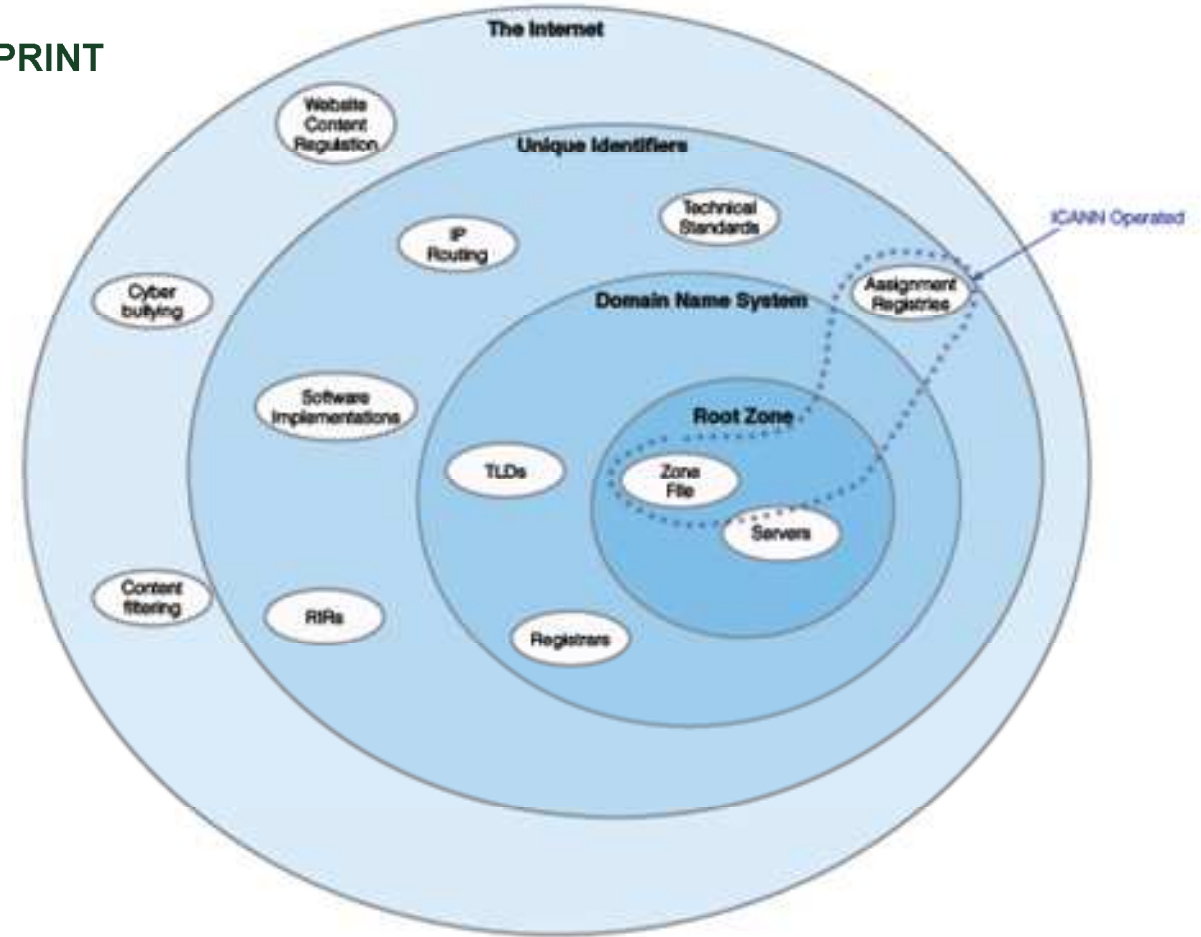
EACH INTERSECTION RATED ON SEVERITY

# DNS RESILIENCE – INTERNET HIERARCHY (ILLUSTRATIVE, NOT EXHAUSTIVE)

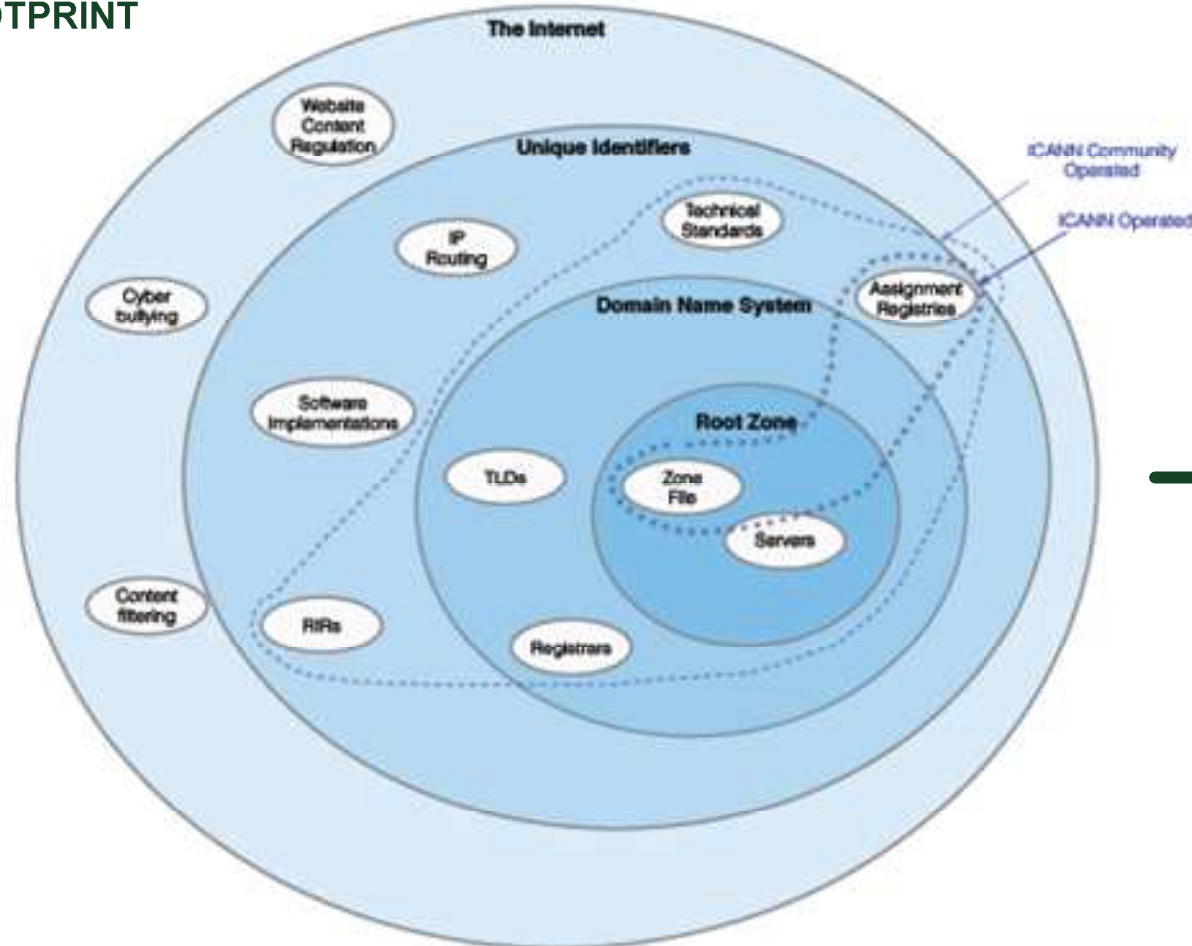
### 1. THE INTERNET



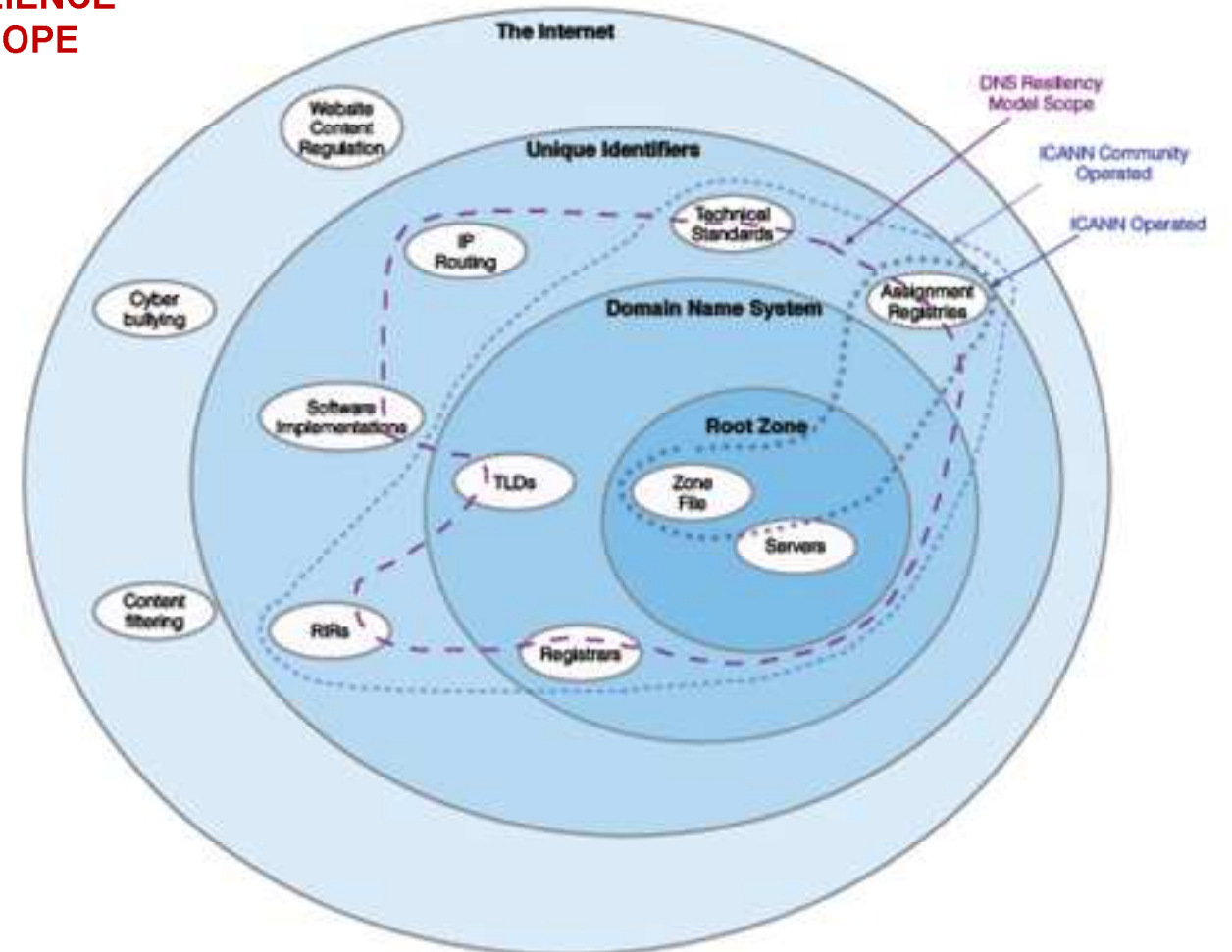
### 2. ICANN FOOTPRINT



### 3. ICANN COMMUNITY FOOTPRINT



### 4. DNS RESILIENCE MODEL SCOPE



# DNS RESILIENCE – RELATIONAL MODEL BETWEEN KEY COMPONENTS

