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Rosendahl et al.

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(54) **VERTICALLY INTEGRATED AUTOMATIC
THREAT LEVEL DETERMINATION FOR
CONTAINERS AND HOSTS IN A
CONTAINERIZATION ENVIRONMENT**

(58) **Field of Classification Search**

CPC .. G06F 21/53; G06F 21/577; G06F 2221/034;
G06F 21/51; G06F 21/563; G06F 8/61;
G06F 11/3616

See application file for complete search history.

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(56) **References Cited**

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(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 423 days.

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(51) **Int. Cl.**

G06F 21/53 (2013.01)

G06F 21/57 (2013.01)

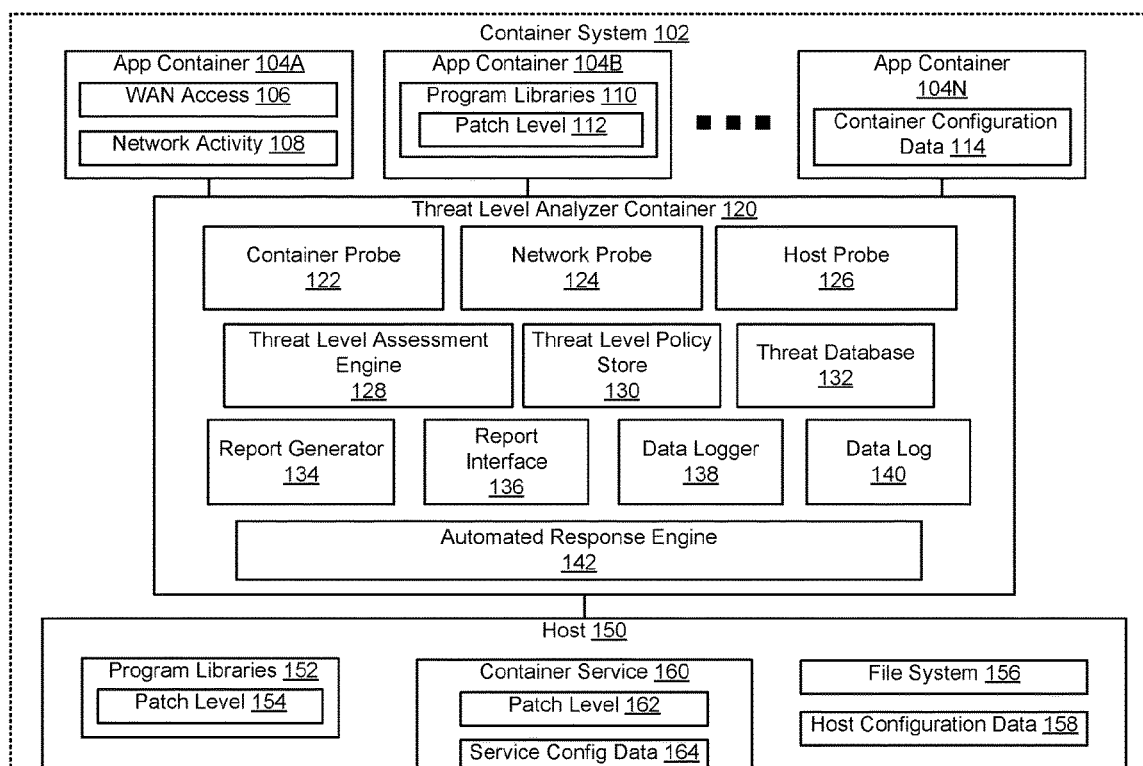
(52) **U.S. Cl.**

CPC **G06F 21/53** (2013.01); **G06F 21/577**
(2013.01); **G06F 2221/034** (2013.01)

(57) **ABSTRACT**

A threat level analyzer probes for one or more threats within an application container in a container system. Each threat is a vulnerability or a non-conformance with a benchmark setting. The threat level analyzer further probes for one or more threats within a host of the container service. The threat level analyzer generates a threat level assessment score based on results from the probing of the one or more threats of the application container and the one or more threats of the host, and generates a report for presentation in a user interface including the threat level assessment score and a list of threats discovered from the probe of the application container and the host. A report is transmitted by the threat level analyzer to a client device of a user for presentation in the user interface.

18 Claims, 7 Drawing Sheets



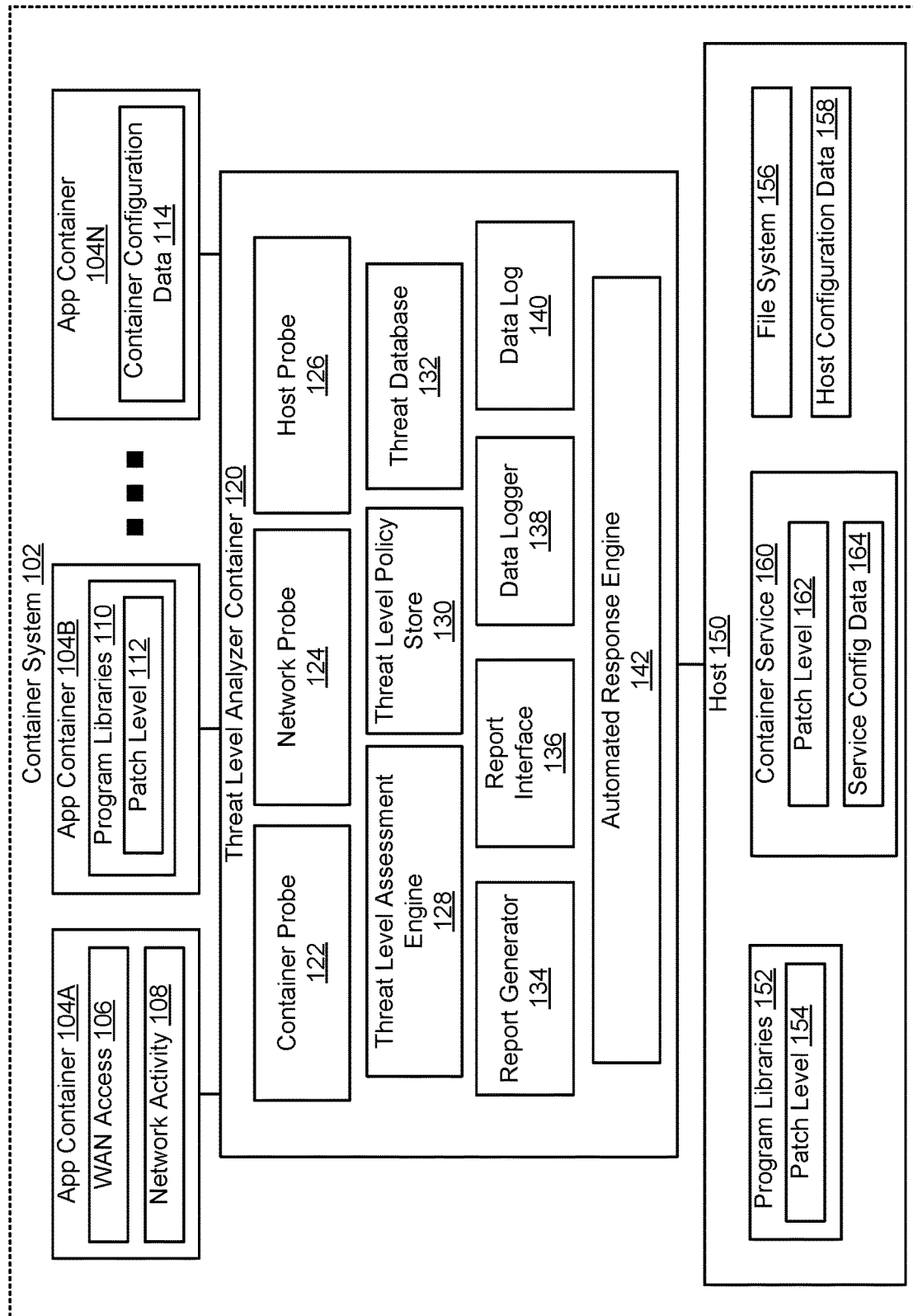
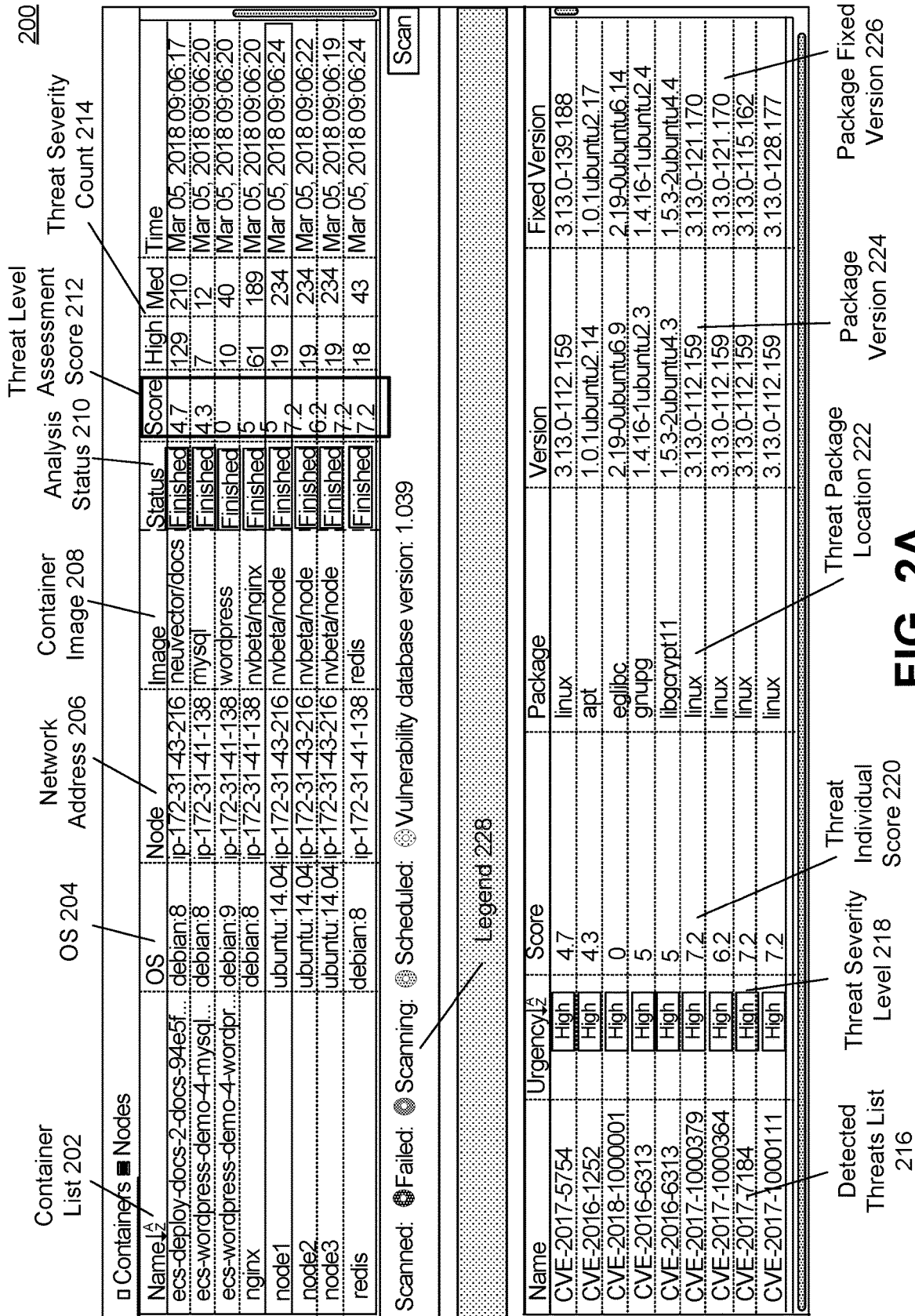
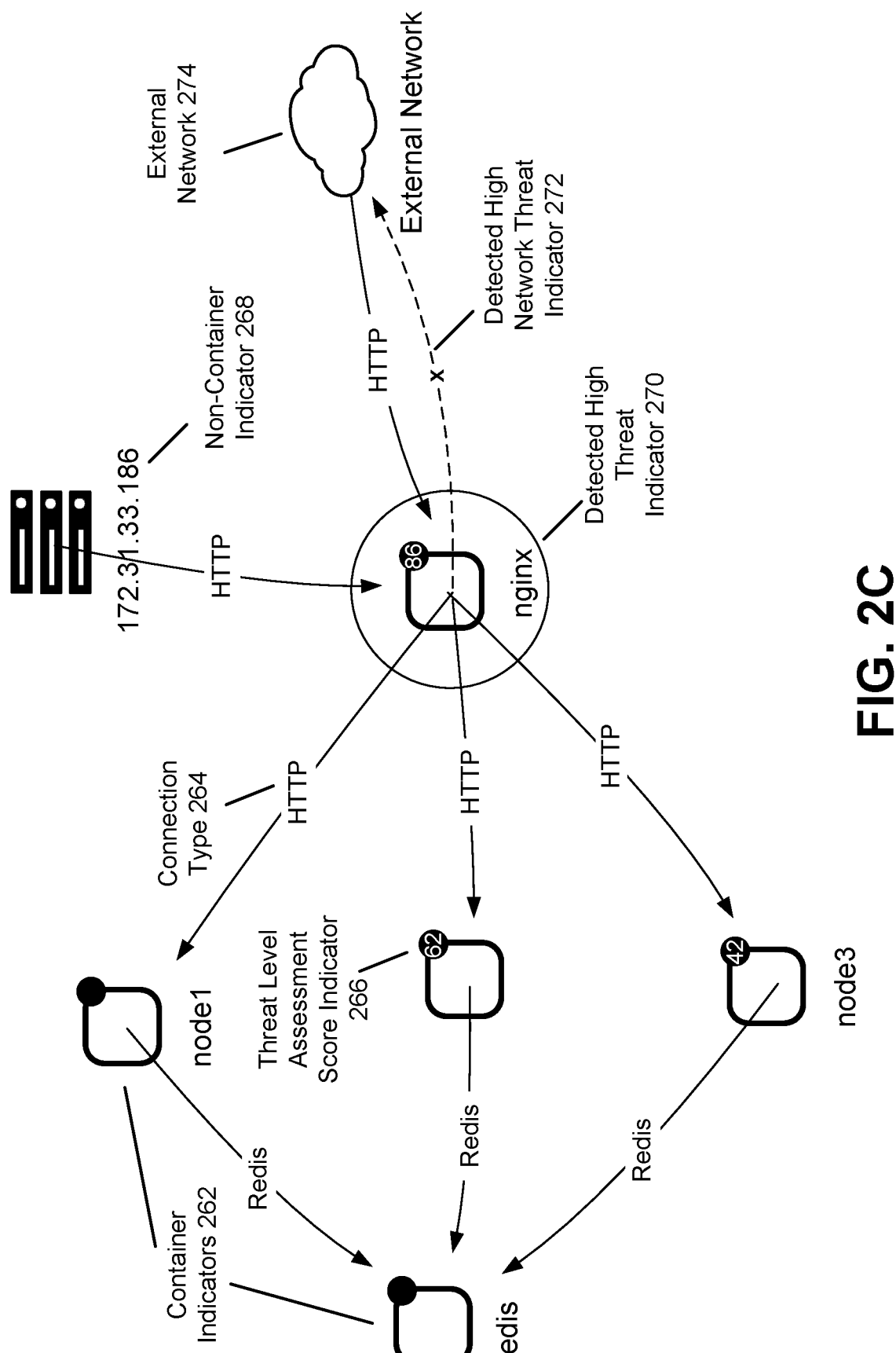


FIG. 1



Node List 232		OS 234	Platform 238		Hardware Info 240		230
Nodes							
Name		OS	Platform	CPUs	Memory		
ip-172-31-41-138		Amazon Linux AMI 2017.03	Amazon-ECS	1	993.5 MB		
ip-172-31-43-216		Amazon Linux AMI 2017.03	Amazon-ECS	1	993.5 MB		
ip-172-31-44-255		Amazon Linux AMI 2016.03	Amazon-ECS	1	993.5 MB		
DOCKET BENCHMARK		Threat Description 246					
Test number		Level	Message				
1.1(14)			INFO	Host Configuration			
1.1			WARN	Ensure a separate partition for containers has been created			
1.2			NOTE	Ensure the container host has been Hardened			
1.3(2)			INFO	Ensure Docker is up to date			
			INFO	Using 17.03.1 verify it is up to date as deemed necessary			
			INFO	Your operating system vendor may provide support and			
1.4(1)			INFO	Ensure only trusted users are allowed to control Docker ...			
			INFO	docker x.497.ec2-user			
1.5			WARN	Ensure auditing is configured for the Docker daemon			
1.6			WARN	Ensure auditing configured for files and dir. -/var/lib/docker			
1.7			WARN	Ensure auditing configured for files and dir. -/etc/docker			
1.8(1)		Threat Report 242	INFO	Ensure auditing configured for files and dir. - docker.service			
			INFO	File not found			
1.9(1)			INFO	Ensure auditing configured for files and dir. - docker.socket			
			INFO	File not found			
1.10(1)		Threat Severity Level 244	INFO	Ensure auditing configured for files and dir. - /ect/default/doc			
			INFO	File not found			
1.11(1)			INFO	Ensure auditing configured for files and dir. - /ect/docker/dae			

FIG. 2B





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