Zero Trust Data

Zero trust data represents a new approach to privacy, data sharing, and governance in a data-driven world. By now, we're all aware of the competitive value of our data. You swim in a sea of it; you collect a mountain of it, at volume, variety, and velocity. What are your responsibilities with respect to this data? Why should anyone trust you with it? How can you share it and still meet your governance mandates? If you are pursuing a big data strategy, you need a framework for privacy, security, data sharing, and governance that people are willing to trust.

In networking, zero trust means "Never trust, always verify." Access is denied by default. PHEMI extends the zero trust principle to data. Without the correct access credentials, a request for data yields no information. If you are not authorized, you see nothing—absolutely nothing.

In a zero trust data strategy, you need to decouple users from data. To do this, you need a few things in place:

- You need a strategy for describing data **(metadata)**. The metadata needs to be extensible, and modifiable as policies evolve.
- You need a way to describe users—people and applications **(attributes)**. Attributes can be delivered in sets: *this* user, who has *this* role, accessing from *this* location, using *this* device, and so on
- Once you have metadata and attributes, you can combine them into rules and policy management that provide the basis for **granular, attribute-driven, policy-based control** over who can see and do what. Policy-based enforcement means that access control is implemented automatically and uniformly.
- You need ***in situ* processing**, too, so that data can be securely processed with different views presented to users based on their authorizations, without a person having to intervene.

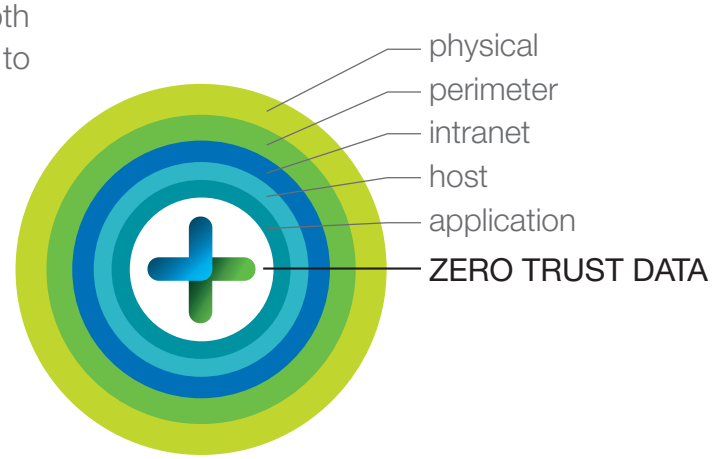
Decoupling data description from user description allows data to remain stable—data should never change—while personnel, roles, departments, authorizations, and even organizations can freely change without disrupting the implementation. Extensible metadata future-proofs the implementation. This makes change, even pervasive and frequent change, much easier to manage.

Applications are relieved of the logic for authorizing users, so application development is faster, lower cost, less brittle, and more secure. Perhaps most importantly, trust is now localized where it should be: with data stewards, who have complete control over policies for data retention, de-identification, access, deletion, ethics, consent, and data sharing.

Zero trust data also takes access control to the data layer. PHEMI's access control features make sure only the right people can see the right data at the right time.

Zero trust data—an essential for privacy, data security, and governance in a data-driven world.

Defense in depth extended right to the data layer



PHEMI Central takes a zero trust data approach to ensure only the right data is provided to the right user at the right time.

Clinician

Full Patient Health Record

Patient Name: Stan
PHN: 13542
Address: 123 Any Street, Town, NY
Zip Code: 10029
DOB: 15-05-62
Weight: 187
LDL: 2.7
HDL: 1.1
Triglycerides: 2.0
Total Cholesterol: 4.2
:

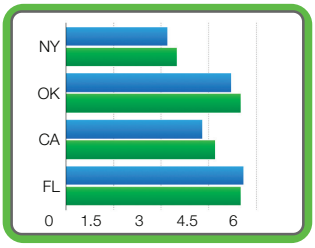
Researcher

Report on cholesterol by age and gender, including masked patient data and calculated values

DOB	Sex	LDL	HDL	Triglyc	Total Chol
--62	M	2.7	1.1	2.0	4.2
--47	M	2.8	1.6	1.4	4.7
--83	F	3.2	1.6	1.6	5.1
--55	F	1.7	1.3	2.1	3.5
--79	M	2.9	1.9	1.7	5.1
--68	F	1.9	1.8	1.3	3.96
--75	F	3.0	1.5	1.5	4.8
--55	M	2.9	1.4	1.1	4.5
:	:	:	:	:	:

Statistician

Histogram summary of patient cholesterol rates across the US, no PHI



Patient

Lab test results optimized for patient.

Patient Name: **Stan** PHN: 13542
Test Date: **2015-10-09**
Lab: Metrolab

Your cholesterol level: **2.8 mmol/L**

Target cholesterol level: **1.7 mmol/L**

✔ **You are 8% closer to your goal!**

♥ **Your heart health rating is 6.5**

PHEMI Data Catalog | Custom and Third-Party Applications | Patient, Clinical Research Portals | Bioinformatics Tools | Analytics Tools

PHEMI Central

Big Data Warehouse

Name	PHN	State	DOB	Sex	LDL	HDL	Triglyc	...
Stan	13542	NY	15-05-62	M	2.7	1.1	2.0	
Emil	26534	OK	27-12-47	M	2.8	1.6	1.4	
Carol	94613	TX	03-06-83	F	3.2	1.6	1.6	
Padma	57236	FL	16-09-55	F	1.7	1.3	2.1	
Qing	46478	CA	08-05-79	M	2.9	1.9	1.7	
Madhavi	92741	NV	01-03-68	F	1.9	1.8	1.3	
Jenny	13562	OR	13-09-75	F	3.0	1.5	1.5	
Amir	35253	WA	28-08-55	M	2.9	1.1	1.1	
:	:	:	:	:	:	:	:	:

Dataset

Collaborate with confidence, knowing that consent, privacy, security, and access rules are universally and consistently enforced for each user and data element, reducing the risk of data breach. PHEMI Central provides virtual datasets, eliminating the need to replicate data in data marts.

Omics Data | Clinical Information Systems | Registries and Databases | Lab Results and Pathology Reports | Enterprise Data Warehouse | Libraries | Collaborators

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This document contains forward-looking features. September 2015

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