



Securing Healthcare Data in Cloud

Naresh K. Sehgal, Ph.D.
Sr VP, Cloud Engineering
NovaSignal Corp.

Oct 6, 2022



Content

Medical Device Industry

What does NovaSignal's devices do?

Why Cloud?

How to secure medical data in a Cloud?

Summary



The Medical Device Industry

Medical Device Classification

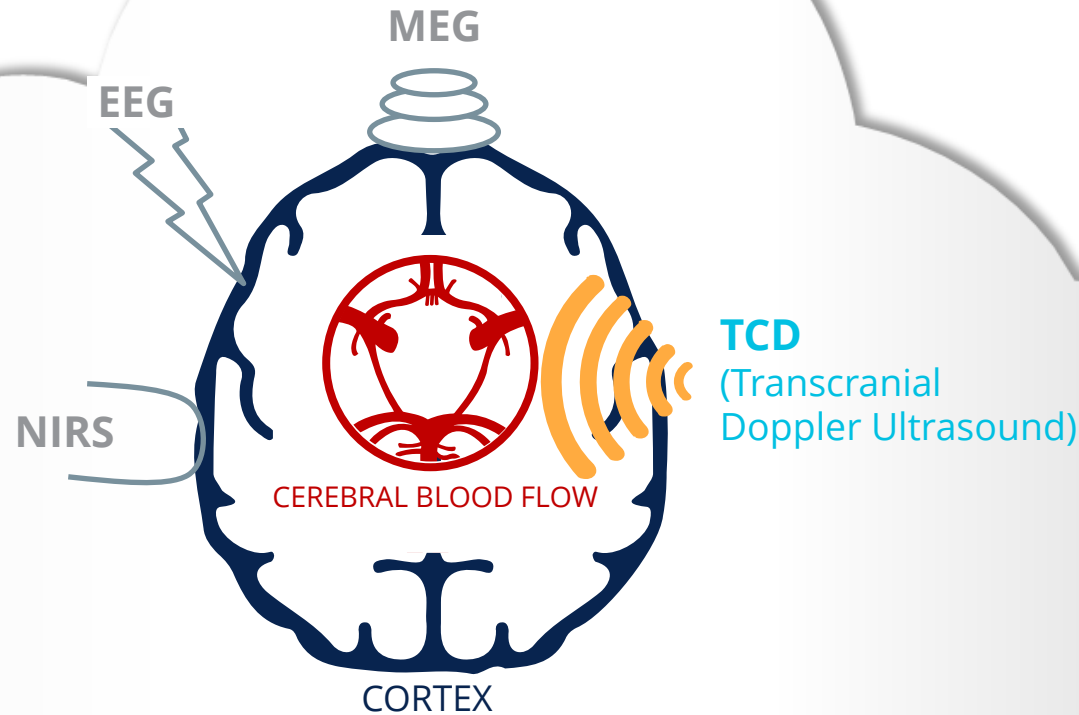
- Class I – Low Risk
 - General Controls
 - Predicate Device
- Class II – Medium Risk
 - General & Special Controls
 - Predicate Device
- Class III – High Risk
 - General & Special Controls
 - Pre-Market Approval
 - No Predicate Device

Medical Device Data

- Health Insurance Portability and Accountability Act (HIPPA)
 - Federal law designed to prevent disclosure of sensitive patient health information
- Digital Imaging and Communications in Medicine (DICOM)
 - Standard for the communication and management of medical imaging information and related data.
- Picture archiving and communication system (PACS)
 - Medical imaging technology which provides economical storage and convenient access to images from multiple modalities.
 - DICOM is the universal format for PACS.



NovaSignal: Democratizing TCD



Stroke is an interruption of blood flow to the brain.

The only technology capable of measuring blood flow in the brain is TCD.

NovaSignal has autonomized TCD through robotics, AI, and cloud computing.

NovaGuide is a robotic, AI-driven TCD system

*that uniquely penetrates the skull to access cerebral blood flow through the arteries of the brain.
NIRS, EEG, and other technologies are limited to changes on the surface of the brain.*

*NovaGuide™ 2 Intelligent Ultrasound

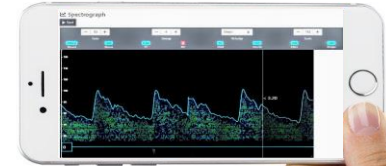
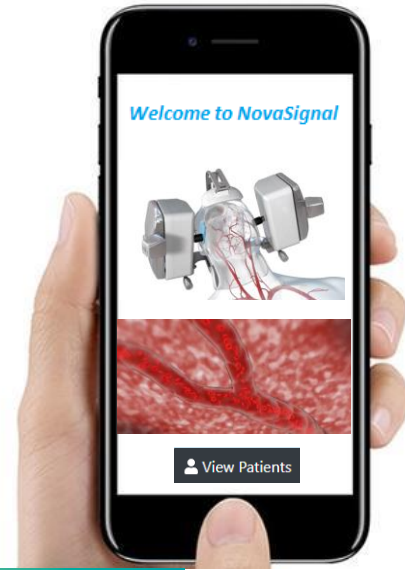
- Cutting-edge AI and advanced robotics
- Captures blood flow data in real time
- Identifies brain illnesses and diseases
- Using changes in cerebral blood flow
- Guides diagnosis and treatment



* Trademark owned by NovaSignal

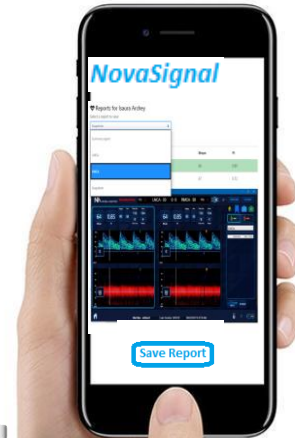
NovaSignal Users want.....

- *Anytime, anywhere TCD exam access*
- *Real-time Monitoring & Alerting*
- *Advanced AI capabilities*



#	MRN	Name	Gender	Age	Actions
1	123-0456	Mad Max	Male	53	👤❤️
2	299-8123	Awesome Jill	Female	20	👤❤️
3	389-6184	Nancie Cangelosi	Female	40	👤❤️
4	479-1125	Quimon Bello	Male	50	👤❤️
5	669-3176	Daniel Lol	Male	60	👤❤️
6	659-2187	Isaura Archey	Female	20	👤❤️
7	749-4158	Shaina Cousineau	Female	32	👤❤️
8	839-5149	Carmel Rohrer	Female	45	👤❤️
9	929-8141	Dean Burbridge	Male	56	👤❤️
10	119-9113	Tod Verret	Male	23	👤❤️
11	209-1195	Cindie Tames	Female	41	👤❤️
12	319-4187	Ernie Ripple	Female	82	👤❤️
13	429-3148	Elaine Rolando	Female	5	👤❤️
14	539-7129	Berta Senecal	Female	12	👤❤️
15	649-9110	Ramon Talamantez	Male	35	👤❤️
16	759-8103	Jude Patel	Male	45	👤❤️

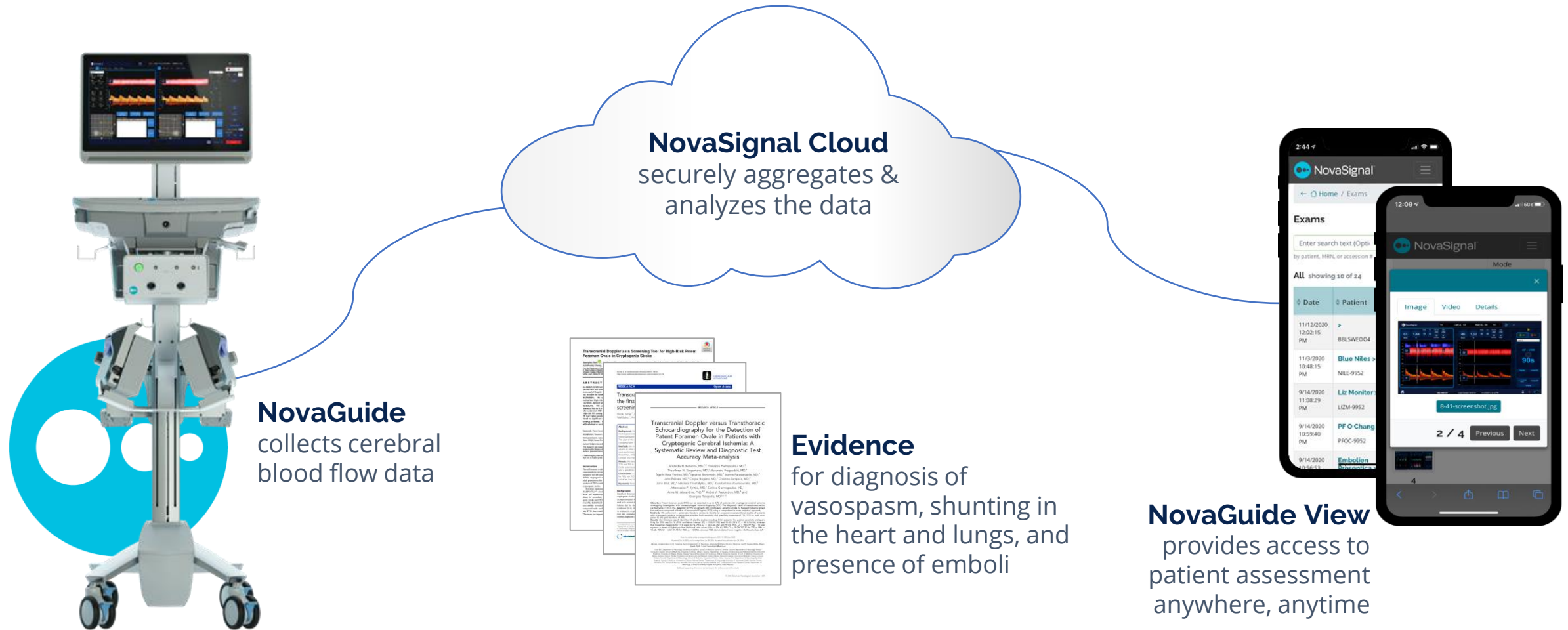
View Options
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The NovaSignal Platform

The only accurate, low-cost, portable and non-invasive solution for the diagnosis of stroke.

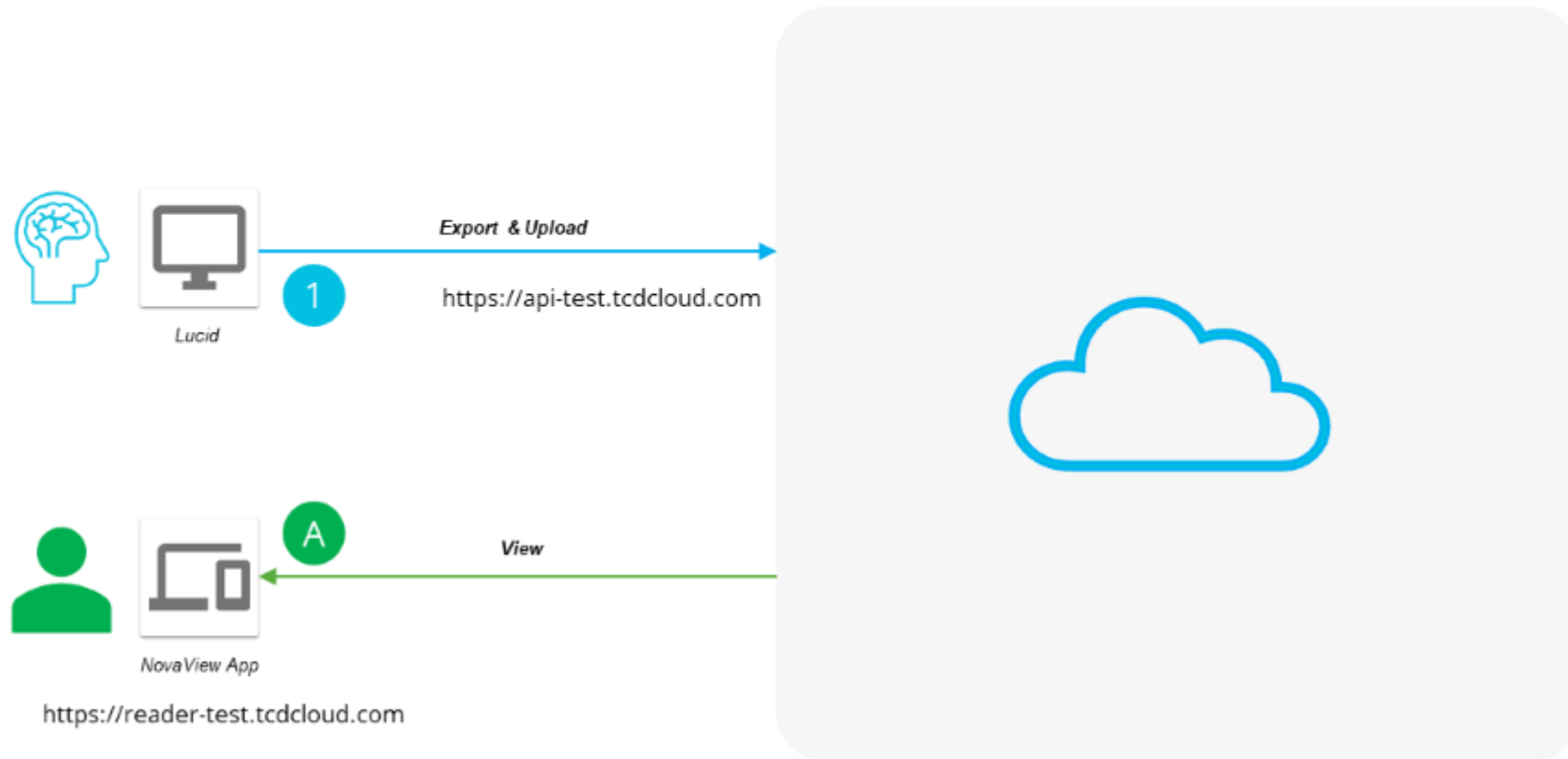
NovaSignal enables all hospitals and clinics to rapidly and accurately diagnosis stroke and other neurological illnesses.



Health
Canada

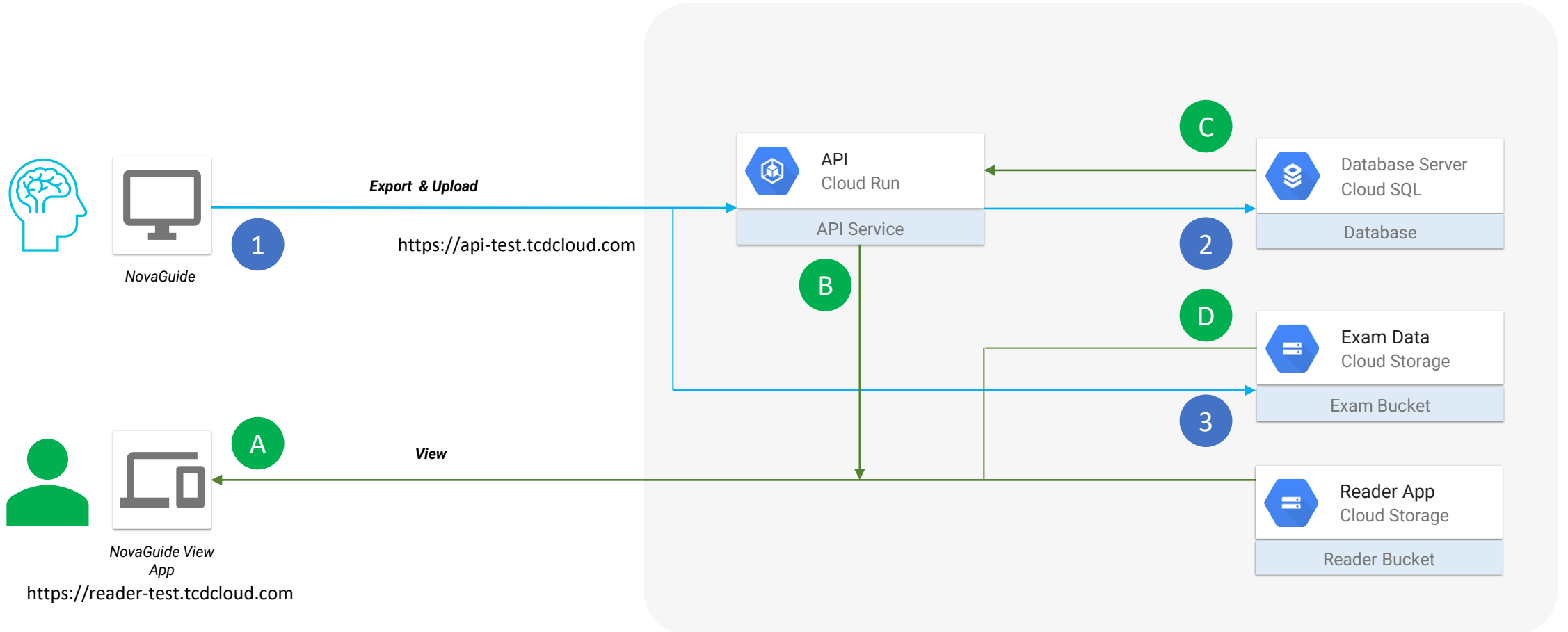
Cloud Architecture Components

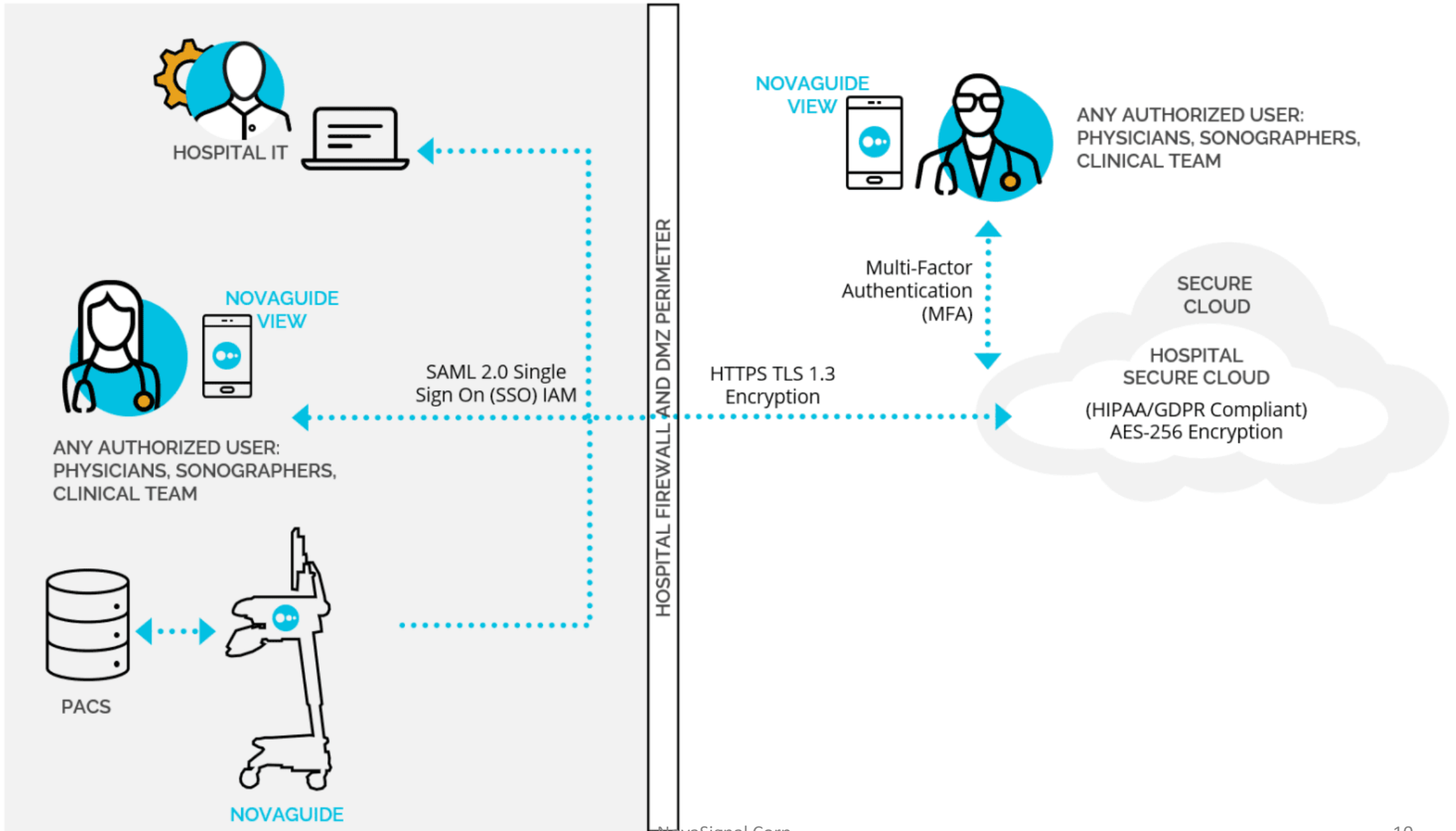
*NovaGuide View



* Trademark owned by NovaSignal

*NovaGuide View with Cloud Data Flow





Security Considerations for Edge Computing

1. Identity Authentication
2. Access Authorization (Different for different roles)
3. Denial of Service Attacks (Uptime and Availability)
4. Data Theft (Confidentiality)
5. Data Integrity and Falsification Protection
6. Invasion of Privacy (HIPPA Compliance for medical data)
7. Activity Monitoring (Logging for audits)

End-to-End Security and Compliance Controls

Certification	NovaGuide View's Private Cloud network invokes SOC2 Type 2 compliant services https://cloud.google.com/security/compliance/soc-2 https://cloud.google.com/security/compliance
Encryption	RSA 2048-asymmetric keys for signature and verification
Transportation	HTTPS using TLS v1.3
Authentication	Username and password using Google, Microsoft Azure, or application-specific single sign-on
Authorization	Hospital IT management provides specific upload/list/read/delete permissions to individual user accounts
Logging	User access is monitored and recorded in HIPAA-compliant logs, which are saved for 7 years
Residuals	Cookies are not stored by NovaGuide View on any local viewing device
Pen testing	Only authorized NovaGuide devices can upload an exam; full stack, end-to-end pen testing is performed to prevent man-in-the-middle attack

Summary

- As world's population lives longer, brain health becomes more vital
- Need new solutions to assess brain disease and democratize them
- Secure Cloud is needed to make access anytime, anywhere possible
- NovaSignal has implemented an end-to-end secure solution in Cloud

Questions?



Contact Naresh