HealthNet

A 21st Century Approach to Healthcare

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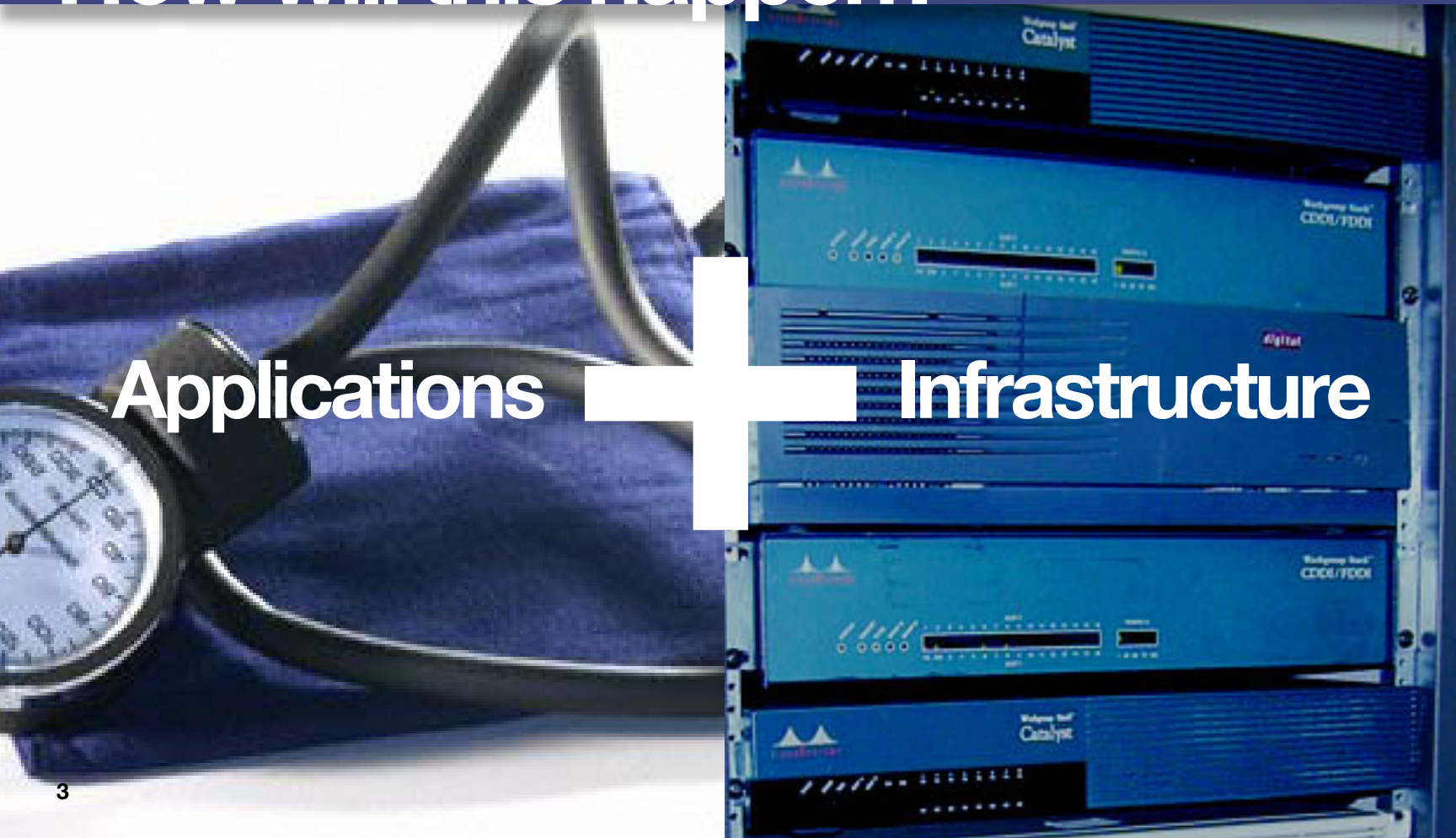
The time is right to take advantage of new technologies to support the healthcare community in its critical mission of ensuring public health

How will this happen?



HealthNet Applications

A 21st Century Approach to Healthcare

HealthNet Applications *is a vision*

of how a system of integrated tools and services

can be implemented to support

the maintenance of health, prevention of disease, solving of medical problems

and the opportunities such a system creates

Today, Alex

feels disconnected from the healthcare experience, perceiving little ownership over his health. Unable to fully understand the deluge of medical information available, he expects the medical community will cure whatever ails him…

while Kei

has limited access to technological resources and has little money. He is concerned about his health, but routinely ignores it… his memory is his health record.

and Rose

is no longer able to enjoy many of the activities she used to, like brisk walks in the park, because her condition requires constant monitoring, which in turn demands a large commitment of physical and human resources. Resulting in a loss of independence and mobility for Rose…

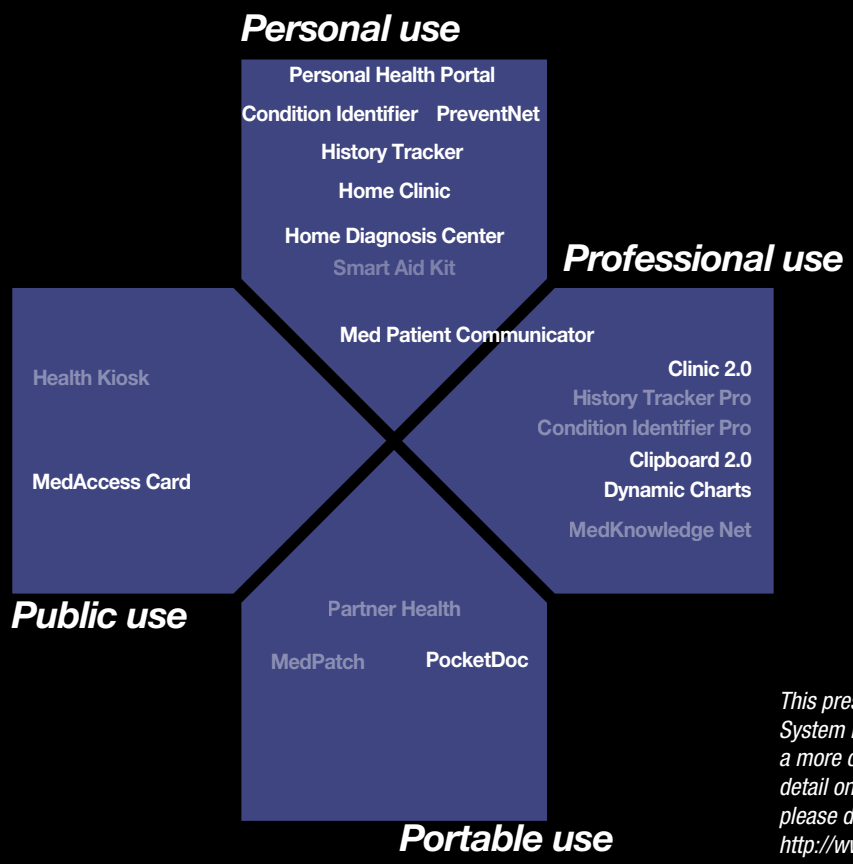
meanwhile at the hospital

Documentation largely remains paper-based making accessing, updating, and sharing information difficult. While organizations that have decided to use digital files employ different standards, complicating the sharing process.

Additionally, healthcare professionals are overburdened creating hectic schedules and environments where important information about patients and treatments may easily be missed or lost.

We look to support those in need, to create a connection between the public and the healthcare community…between individuals and the information needed.

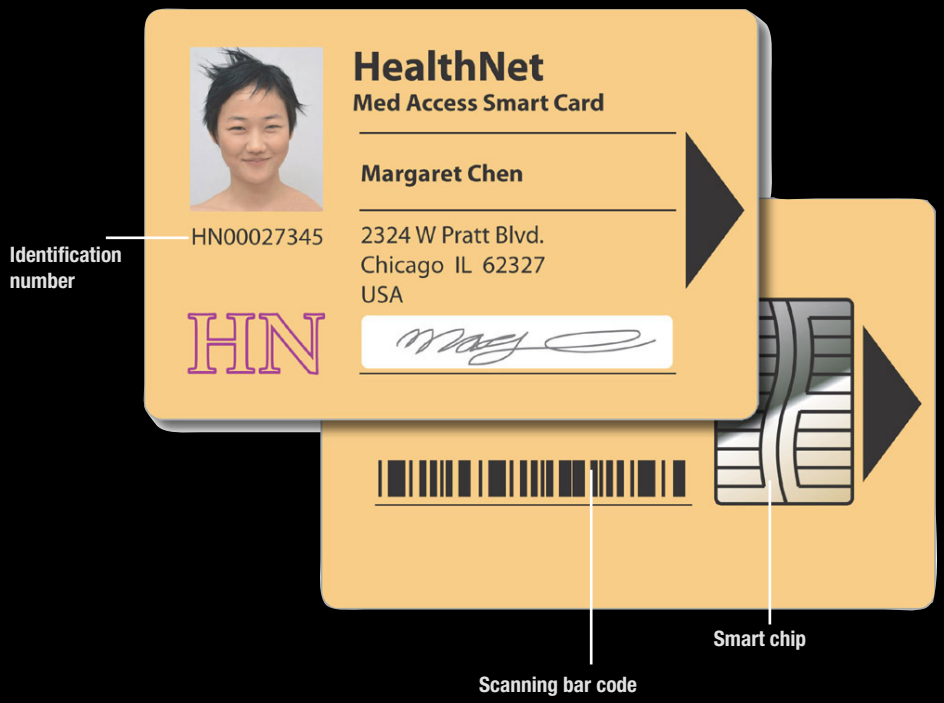
The system elements



This presentation will introduce the System Elements labeled in white. For a more complete description as well as detail on the System Elements in grey, please download the complete report at http://www.id.iit.edu/profile/gallery/healthnet/

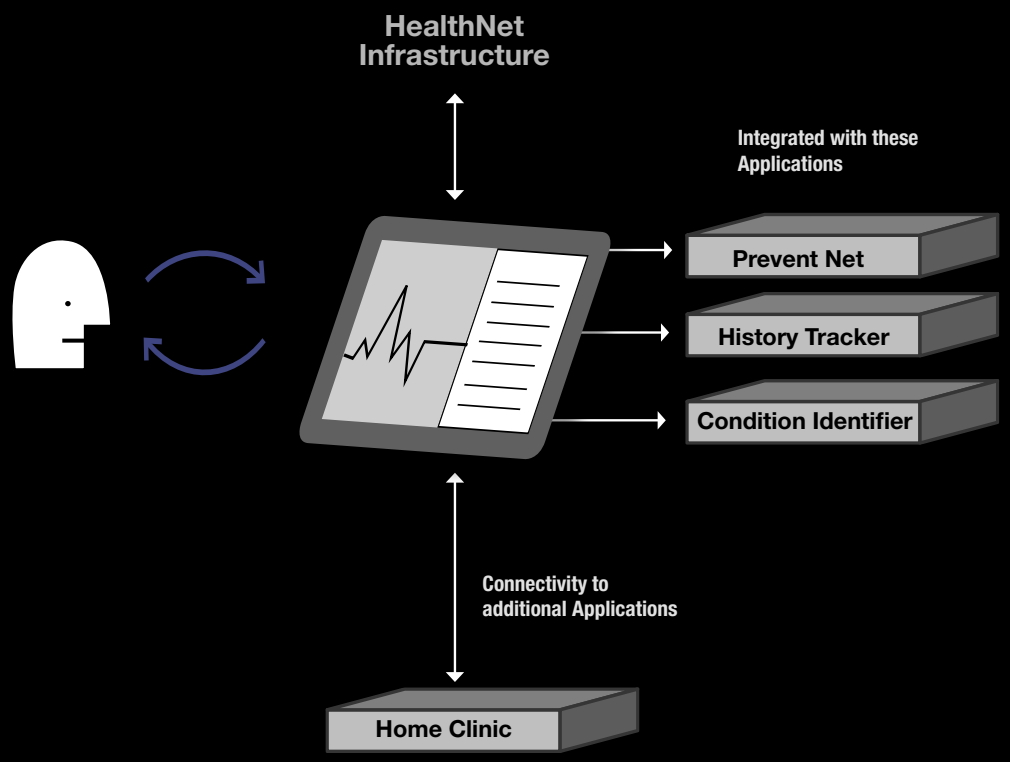
Med Access Card

An identity verification card that ensures the authenticity of users accessing their personal health records, paying for healthcare services and recording their healthcare data from a range of remote locations, such as at healthcare facilities, pharmacies and at the Health Kiosk.



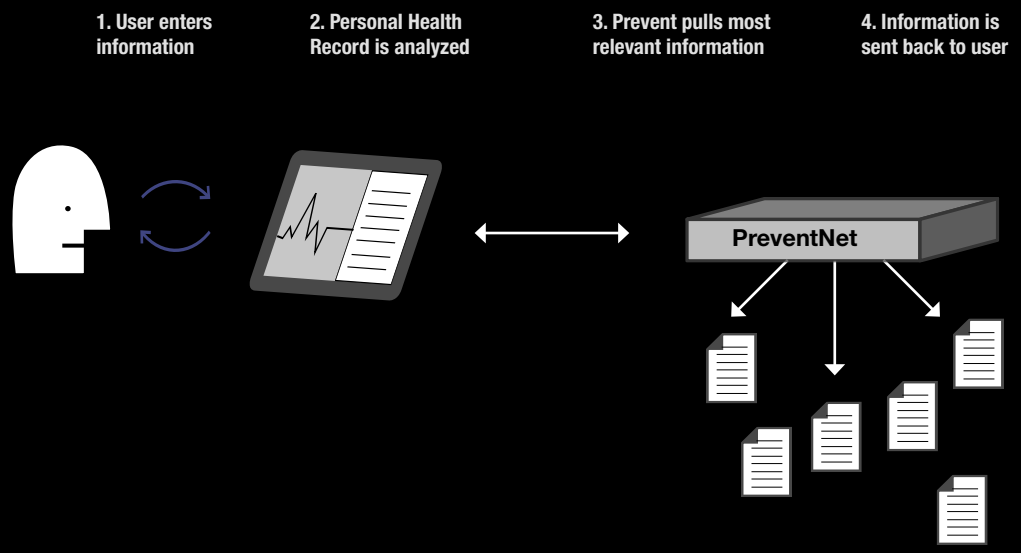
Personal Health Portal

A web-based personal management site that displays personal health records, medical information tailored to the individual's age and education level and a suite of programs allowing individuals to make informed decisions about managing and maintaining their health.



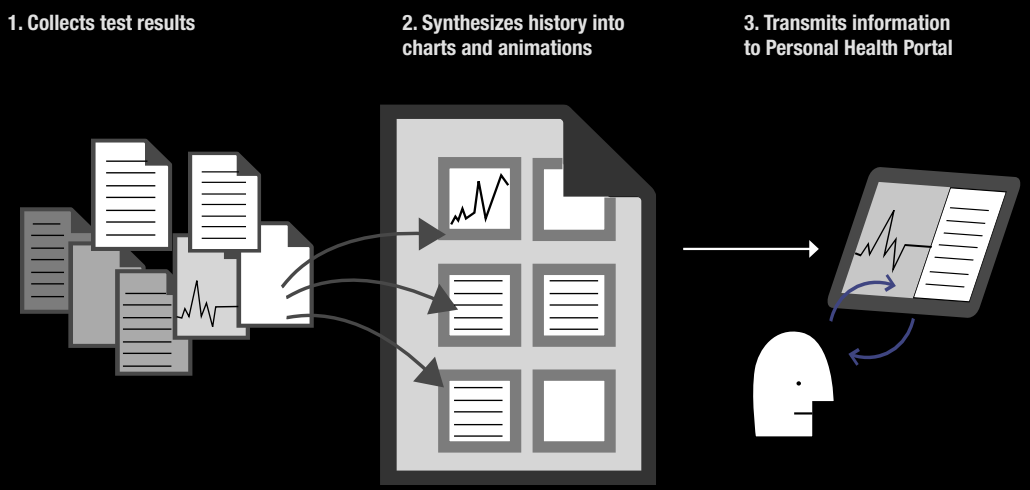
PreventNet

A software program that analyzes the patterns in users' personal health records, connects to databases maintaining data on preventative care and pushes that information to users so that they can take better, more informed care of themselves. Users can also search PreventNet for medical information via symptoms, risks and/or treaments.



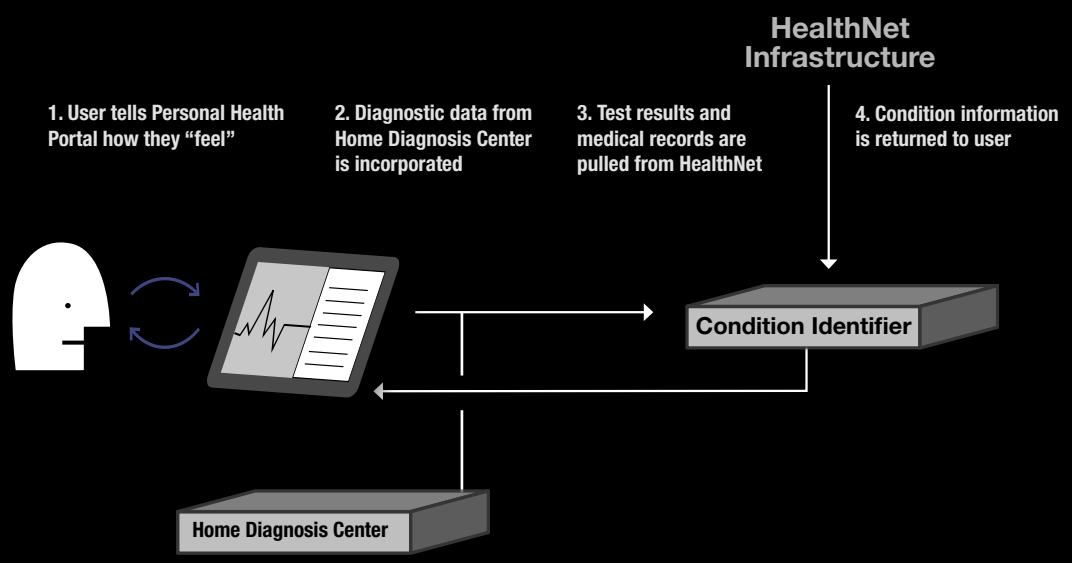
History Tracker

An application for personal or professional use, which synthesizes an individual's medical history information into easy to understand diagrams and animations that illustrate trends over time. History Tracker can also track family medical histories, provided the information is made available, to further explore patterns and risks.



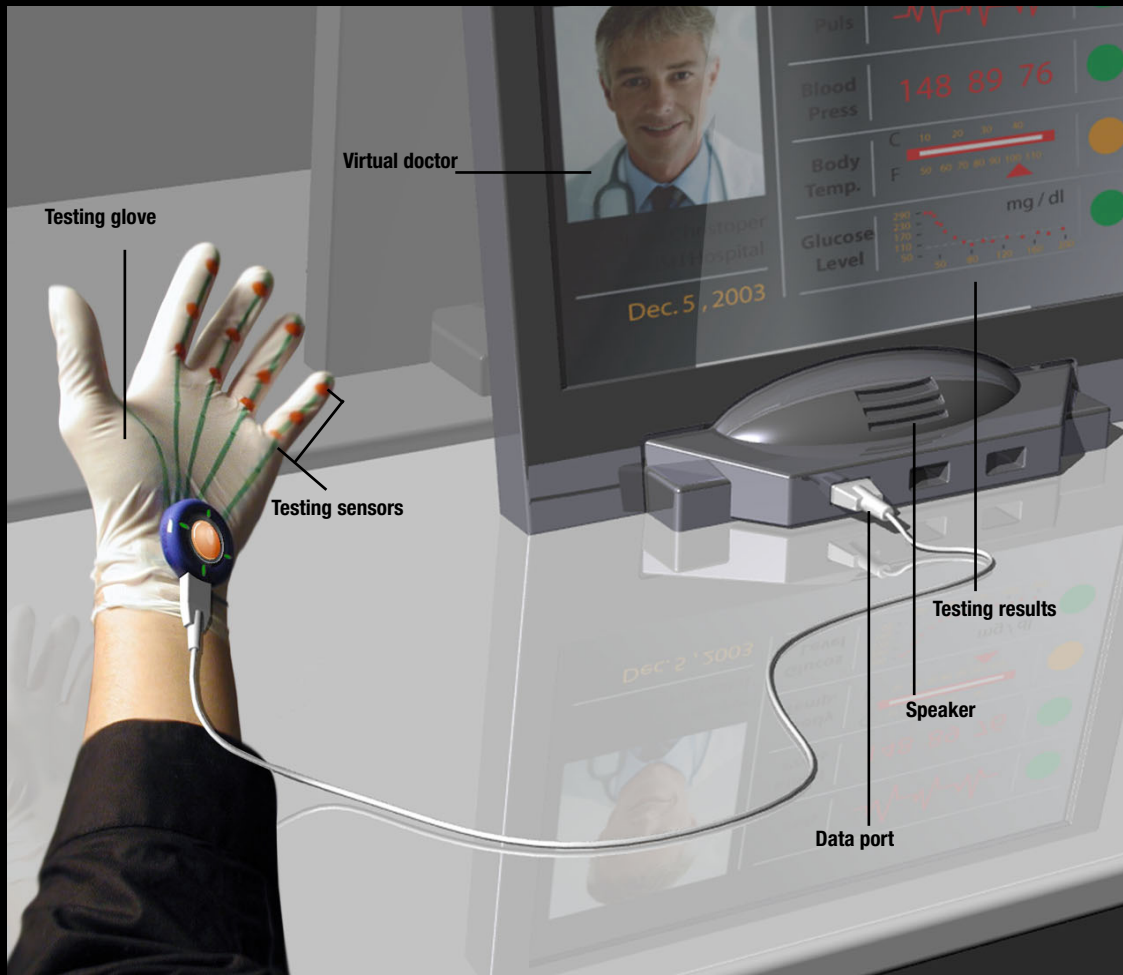
Condition Identifier

A software program that assesses a user's medical condition by aggregating data inputted by the user, from diagnostic devices and doctor submitted test results. Integration with History Tracker and PreventNet pushes tailored medical information to the user based on their heath data.



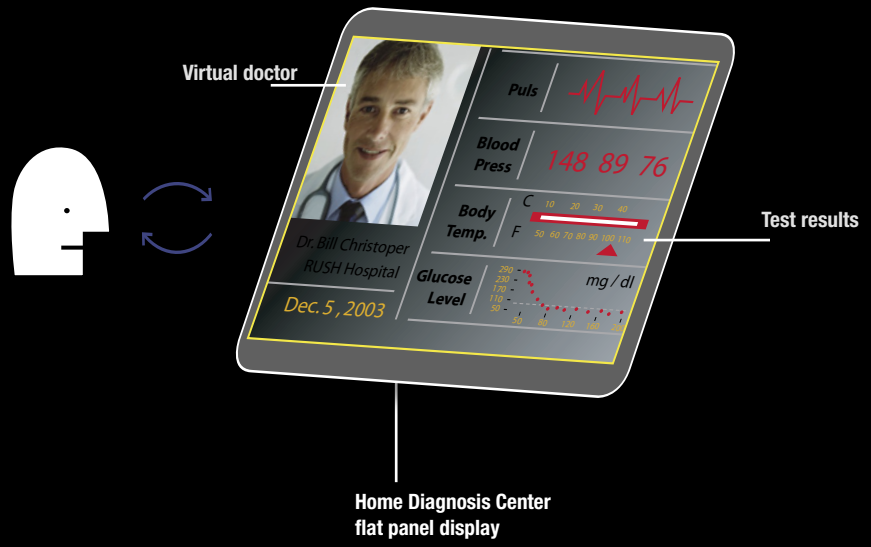
Home Diagnosis Center

A remote testing system that eases a user's burden of traveling to medical professionals. Sensors on a testing glove take diagnostic data, analysis of test results is performed by the Home Clinic software program and supporting information can be reviewed on a flat screen display. Performing diagnositc testing at home will ease overcrowding at medical clinics.



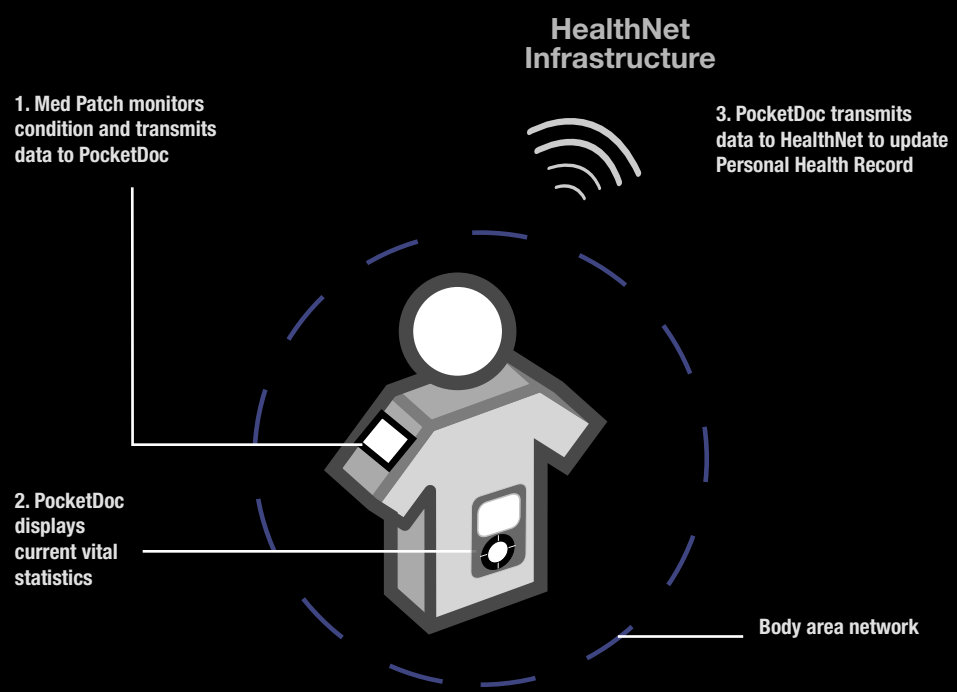
Home Clinic

A software program that analyzes the results of user-performed diagnostic tests. Integration of agent-based software technology allows users to interact with a virtual healthcare professional.



Partner Health

Body area network monitoring system that works in conjunction with the MedPatch monitoring device and the PocketDoc personal medical interpreter/communicator to inform users of their current and changing physical states. Additionally, it functions to alert not only the user, but also the medical community so personal medical issues do not go unnoticed.

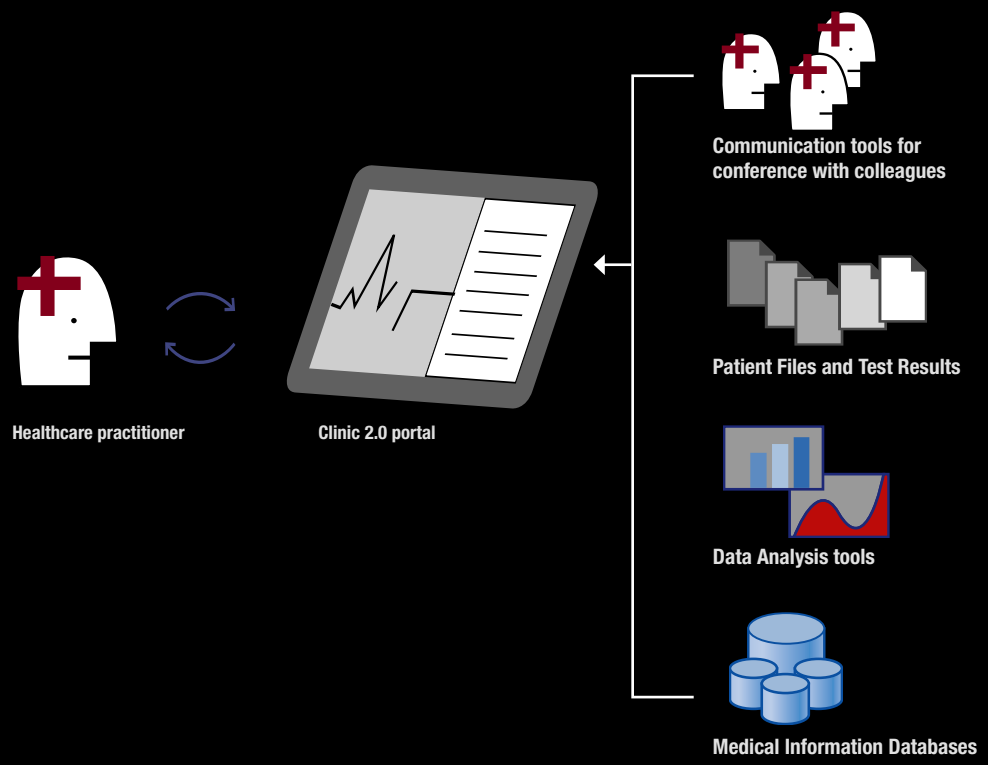


PocketDoc

A pocket-sized symbiotic device that alerts users and their primary care givers of adverse changes to their physical state. A friendly avatar conveys to the user their current physical state by analyzing data sent from the user's monitoring device. With this device troubling trends can be addressed before they have time to develop into life-threatening situations.

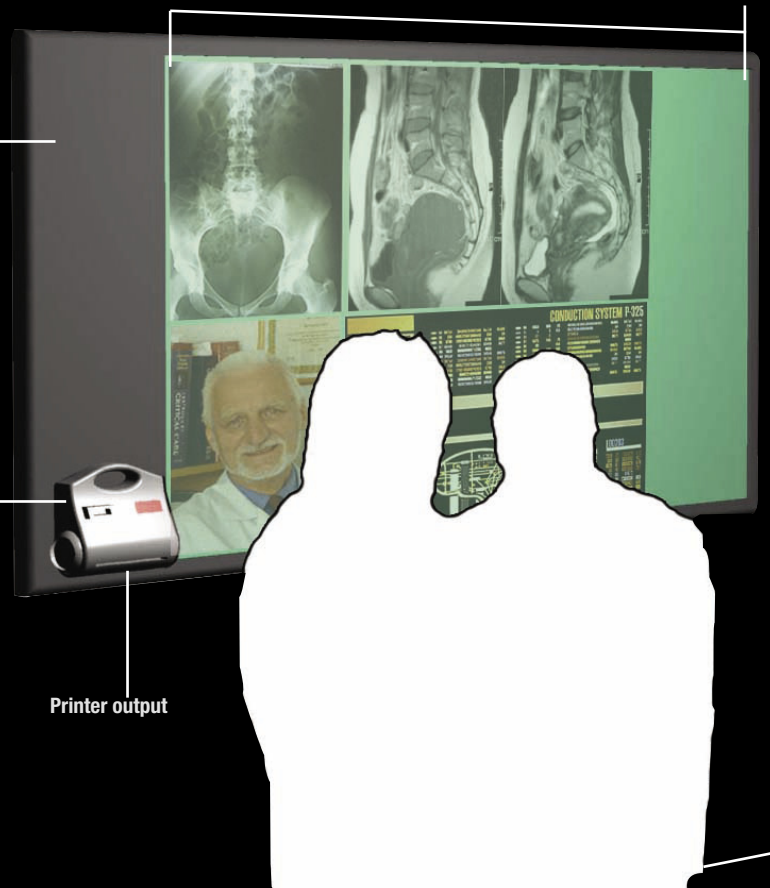
Clinic 2.0

A portal designed to simplify how healthcare practitioners access the data and software programs they need to analyze patient records. Accessible via the Clipboard 2.0 and Dynamic Charts devices, Clinic 2.0 provides access to patient health records and test results, software programs to perform analysis, and communication tools for consultation with other professionals.



Dynamic Charts

A wall display system that connects to local information networks and the Internet. Used during consultations it displays patient information, charts and video. A touch sensitive surface allows for quick input and annotations. A detachable printer lets practitioners keep a copy of the notes they just made and a "bulletin board" area lets paper-based notes be affixed.



Clipboard 2.0

A device that provides hospital doctors with the mobile technology they need to analyze data on the fly, while satisfying administrators by avoiding costly investments in technology and preventing unauthorized access to data. Leveraging a constant wireless connection to HealthNet's infrastructure, the network performs the processing and data storage activities, dramatically reducing the cost of ownership and preventing data from being illegally removed.

Med Patient Communicator

The Med Patient Communicator is a device for hospitalized patients to communicate with their loved ones; and for the patients and healthcare staff to communicate with one another. It also allows the patient to view various entertainment media such as television, images, and music, as well as internet access.

HealthNet & Alex

Alex now feels like a partner in the healthcare process. The experience has gone from being mysterious to transparent. He is now connected with information about his current condition and potential risks, as well as steps he may take to help improve or maintain his condition.

HealthNet & Kei

Kei is now able to access his files and records from a variety of locations, expanding the resources available to him. He is also assured that the information surrounding his care is supported and traced by something other than his memory.

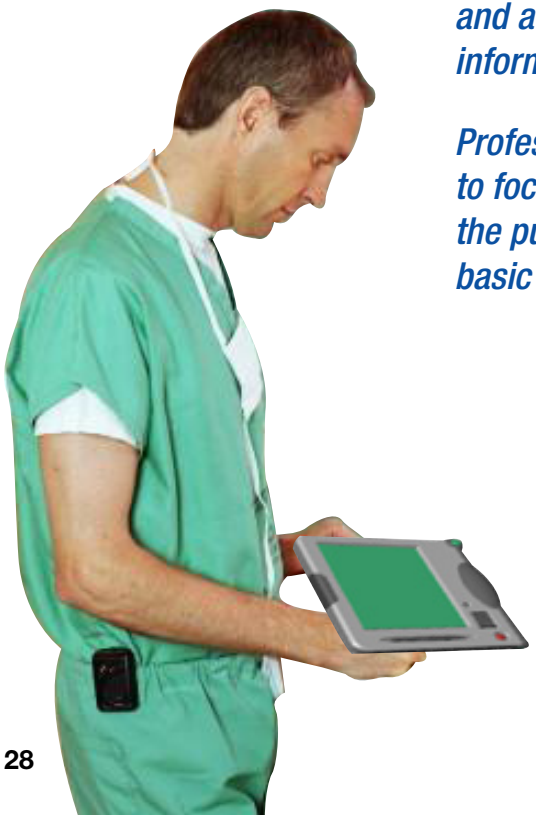
HealthNet & Rose

Rose is now able to regain control in her life. She is able to monitor her condition and receive advice without being watched constantly. She also no longer fears being alone, knowing help will come if an emergency arises, as she is connected to the medical community.

HealthNet & professionals

Healthcare professionals are able to share, update, and access files digitally, allowing for more accurate information and a greater ability to collaborate.

Professionals also find themselves with more time to focus on pressing patient problems as more of the public is equipped with tools for managing their basic health.



HealthNet Applications ***is an integrated system of tools and services to support the general public and healthcare professionals.***

However, this vision can not exist without support. This vision can not exist without an infrastructure.

to be continued…

HealthNet Infrastructure

A 21st Century Approach to Healthcare

HealthNet Infrastructure *is a vision of*

how multiple systems—technical, organizational, and financial

can be integrated to support

a healthcare network

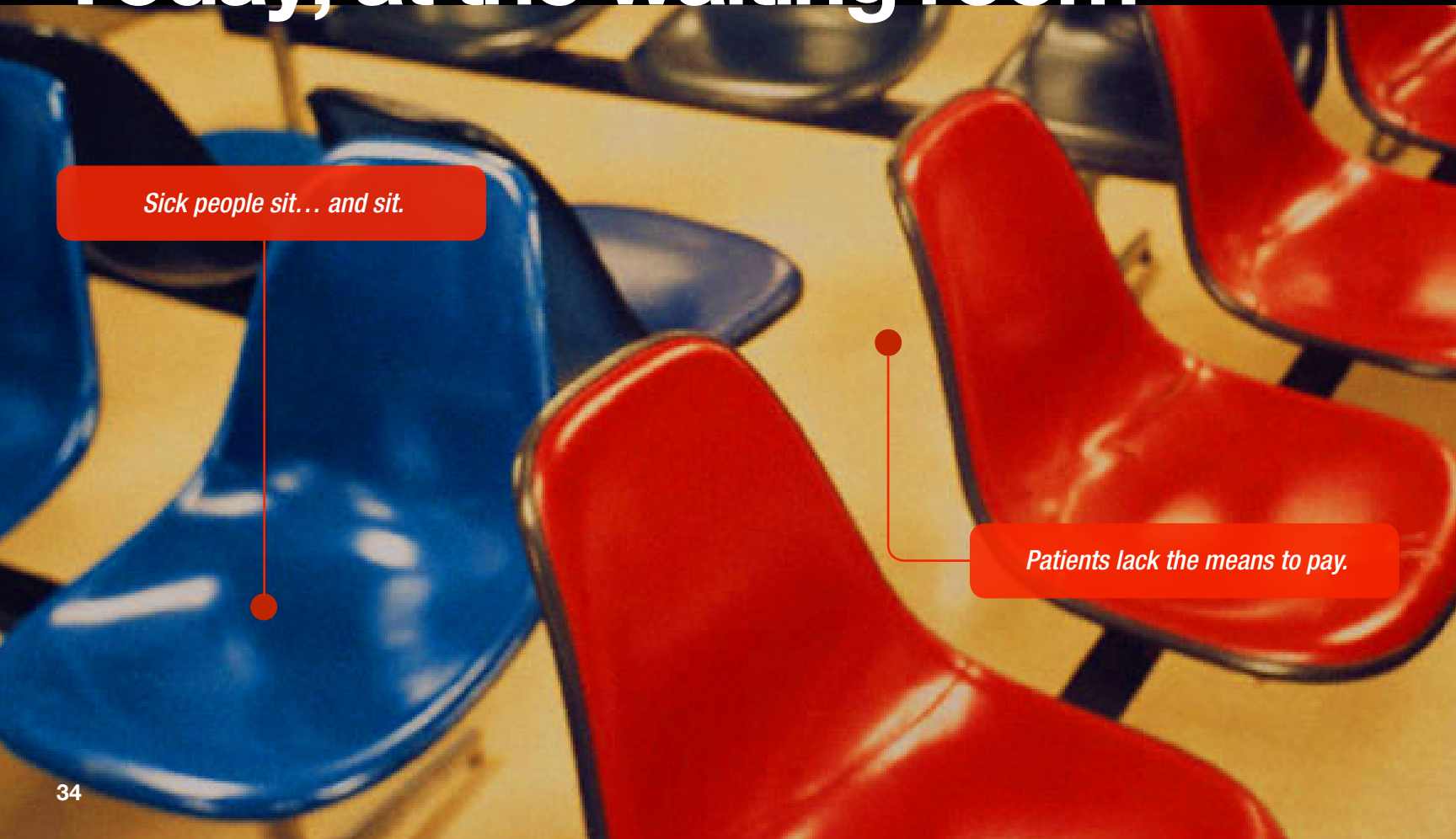
and the enormous possibilities enabled by such a network.

Today, at home

Today, in the ambulance

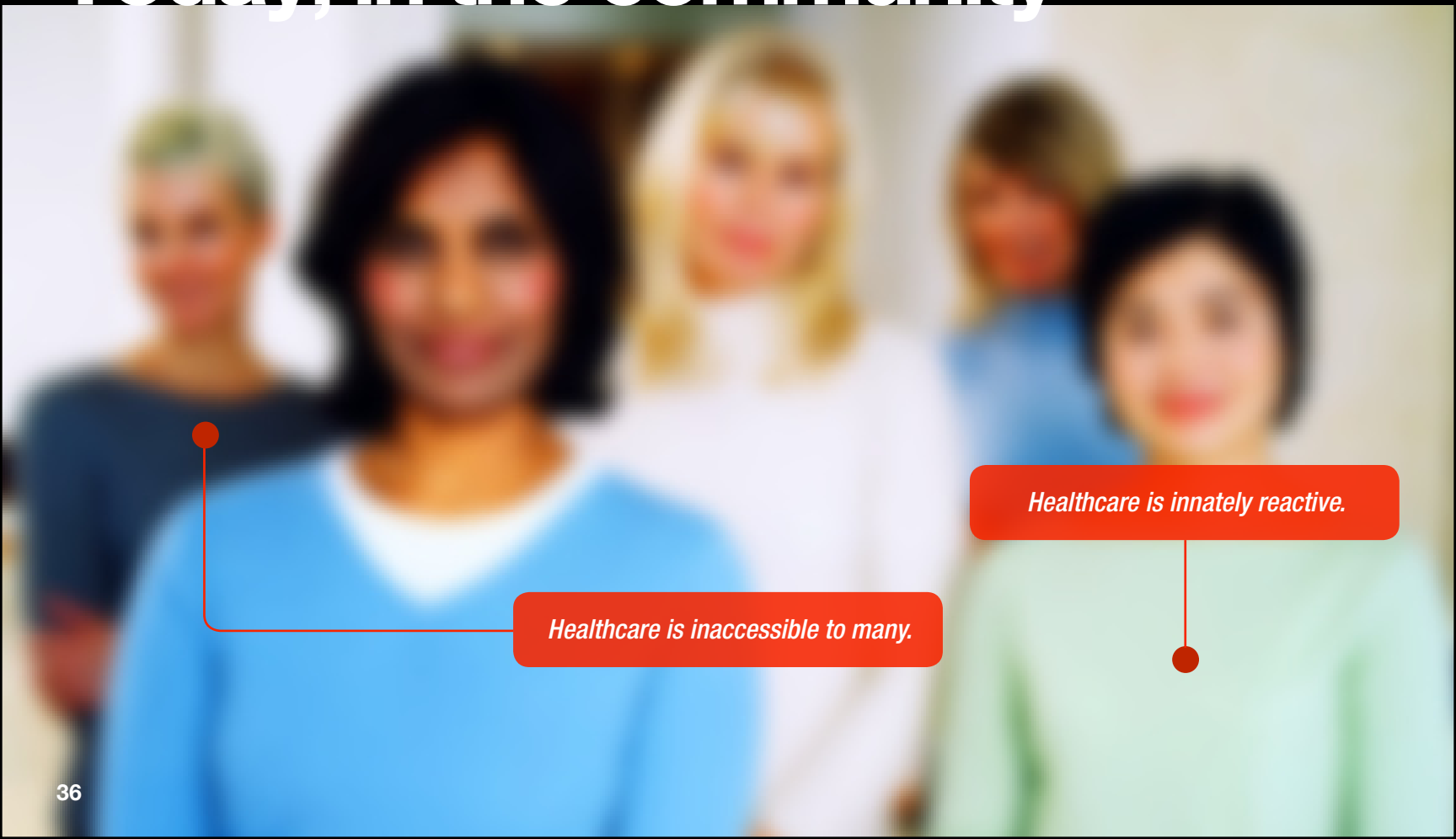
Medical records aren't easily attainable.

Today, at the waiting room

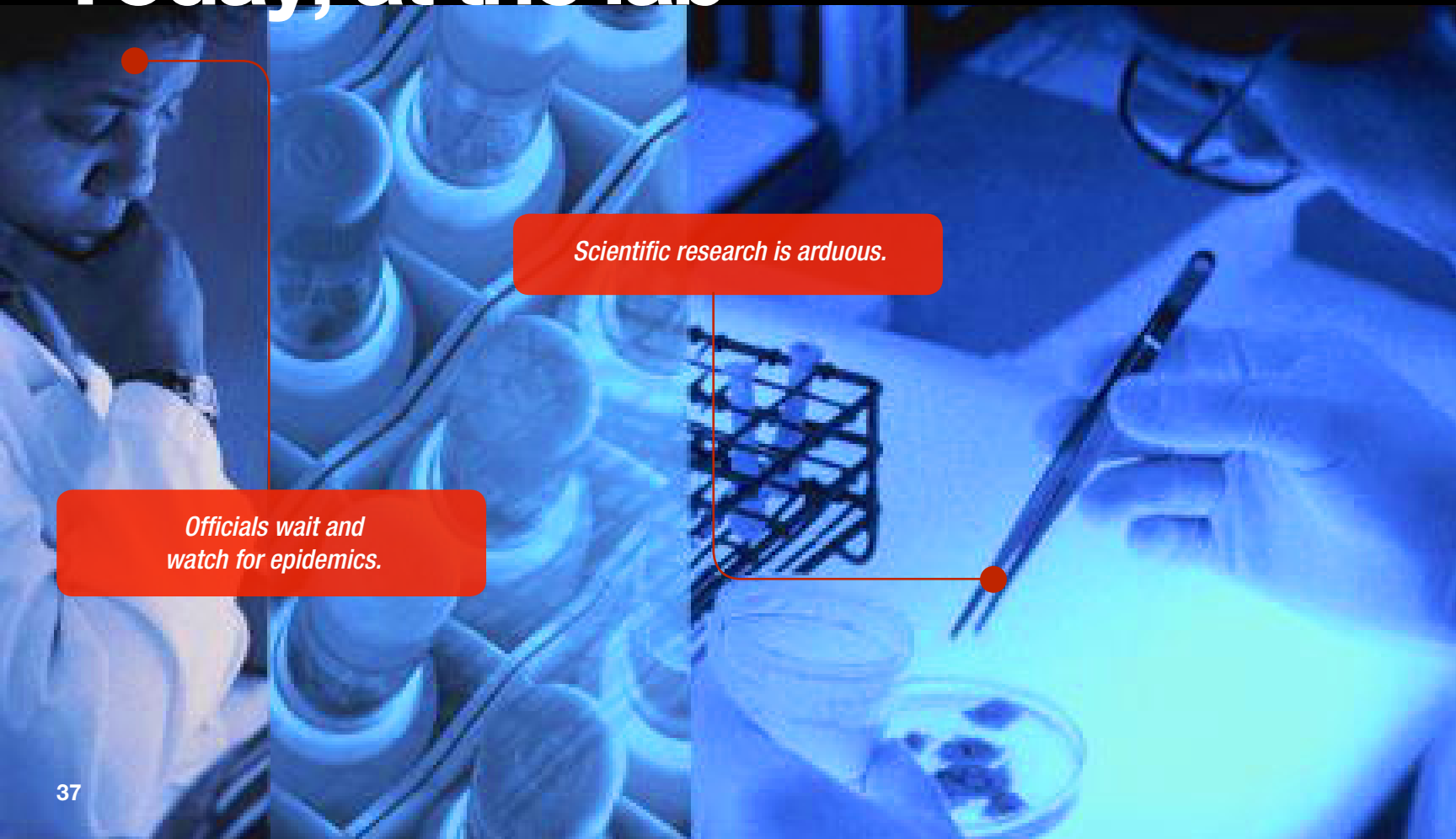


Today, in the ER

Today, in the community



Today, at the lab



*These are all very real problems and they are already being addressed—**but separately**.*

HealthNet Infrastructure is:

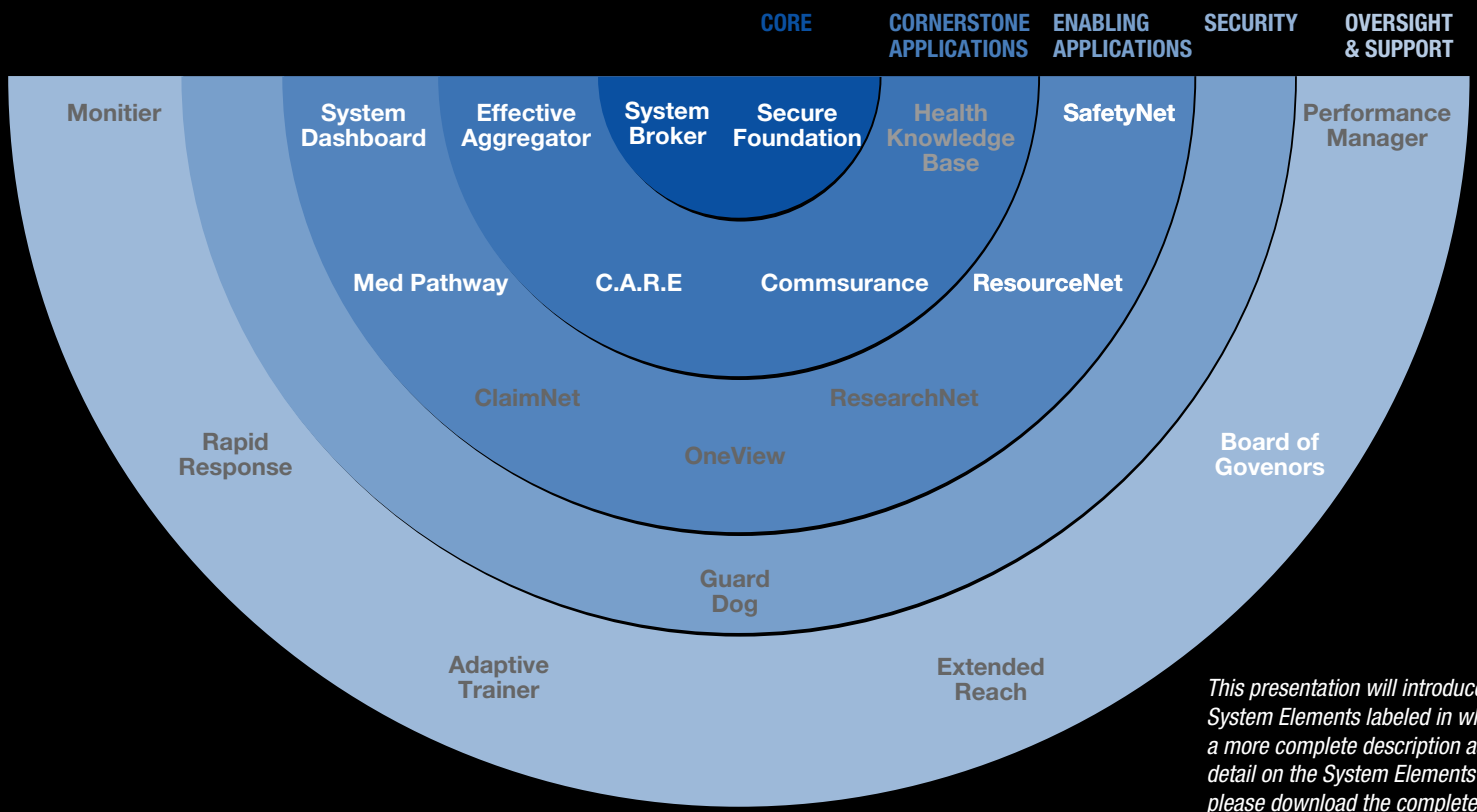
Systemic, *enables networked healthcare in a range of environments*

Adaptive, *flexible and integrated, not rigid and atomic*

Empowering, *encourages and enables individual involvement*

Real-time, *speeds decisions and distribution of resources*

The system elements



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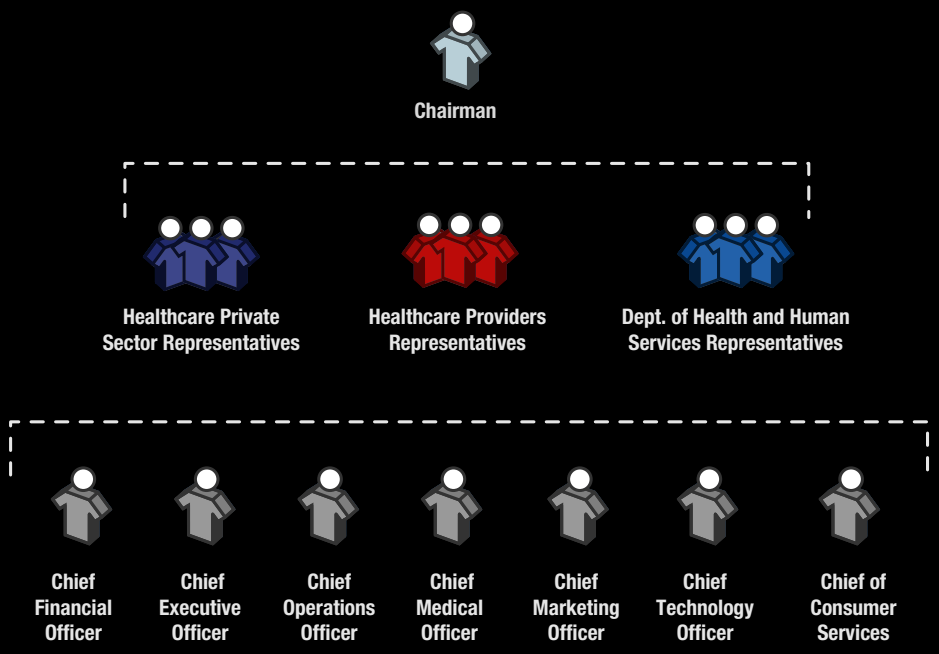
Board of Governors

Oversight and Support

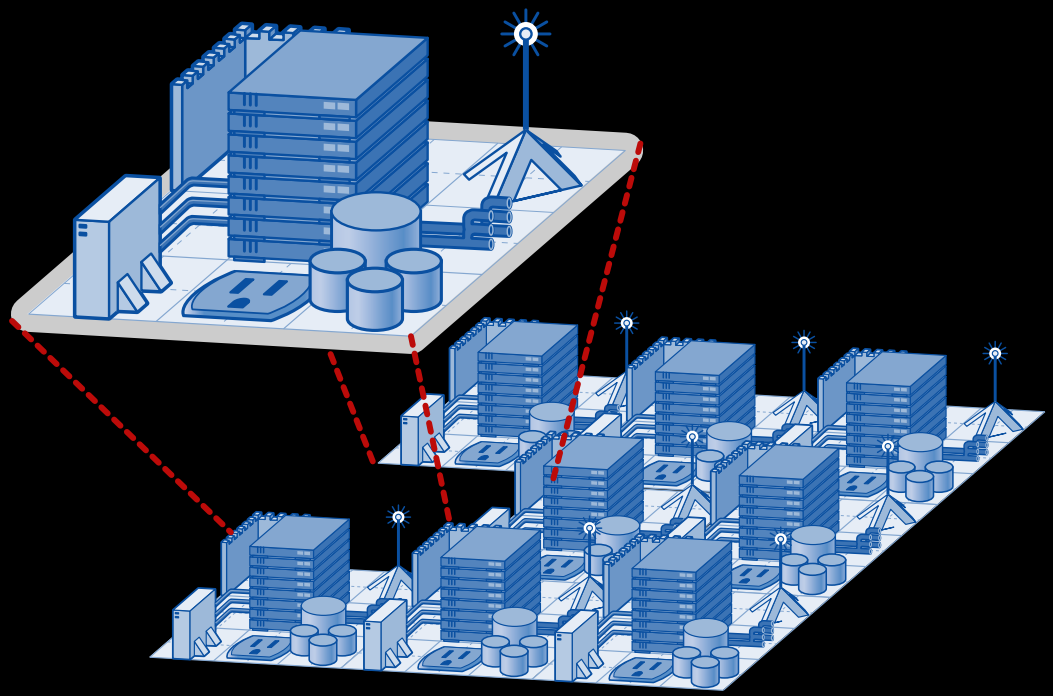
A heterogeneous board designed to govern HealthNet, ensure its political independence and maintain its sensitivity to divergent concerns.



Secure Foundation

Core

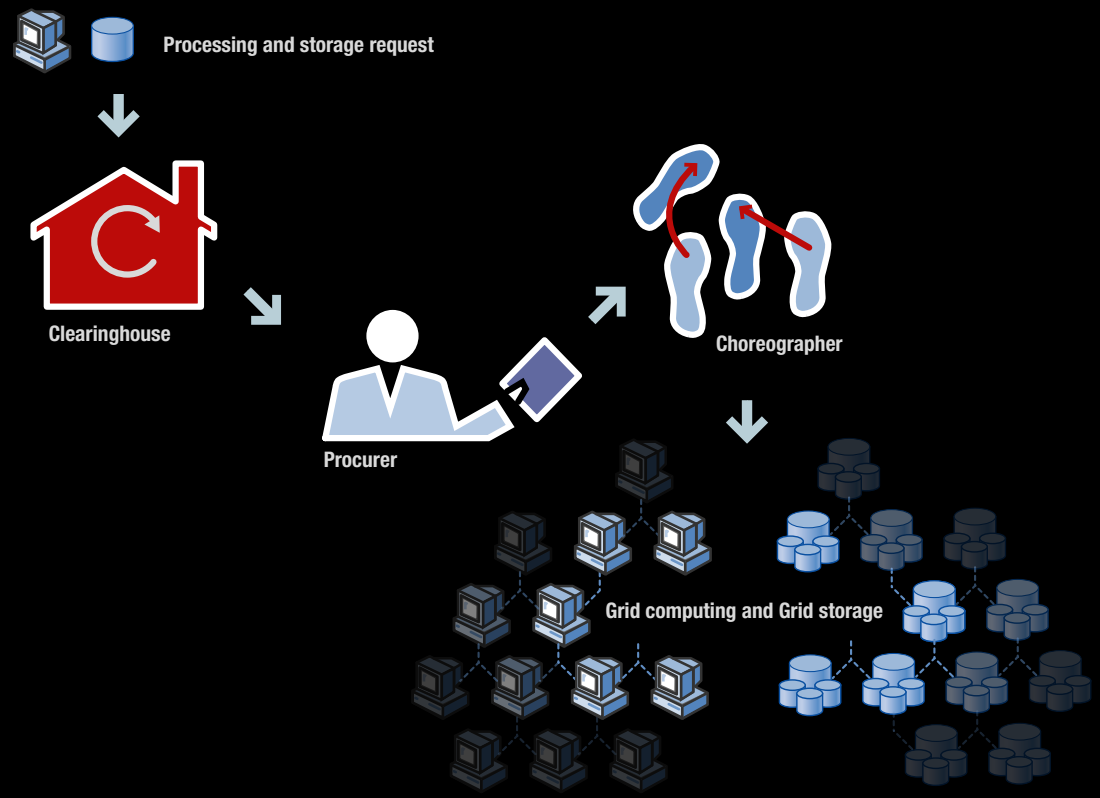
A highly distributed, redundant network and system architecture. Secure Foundation provides a set of tools that allow users to add infrastructure pieces modularly through the installation of a common code base, enabling autonomic repair and a standard means of classification, identification and monitoring.



System Broker

Core

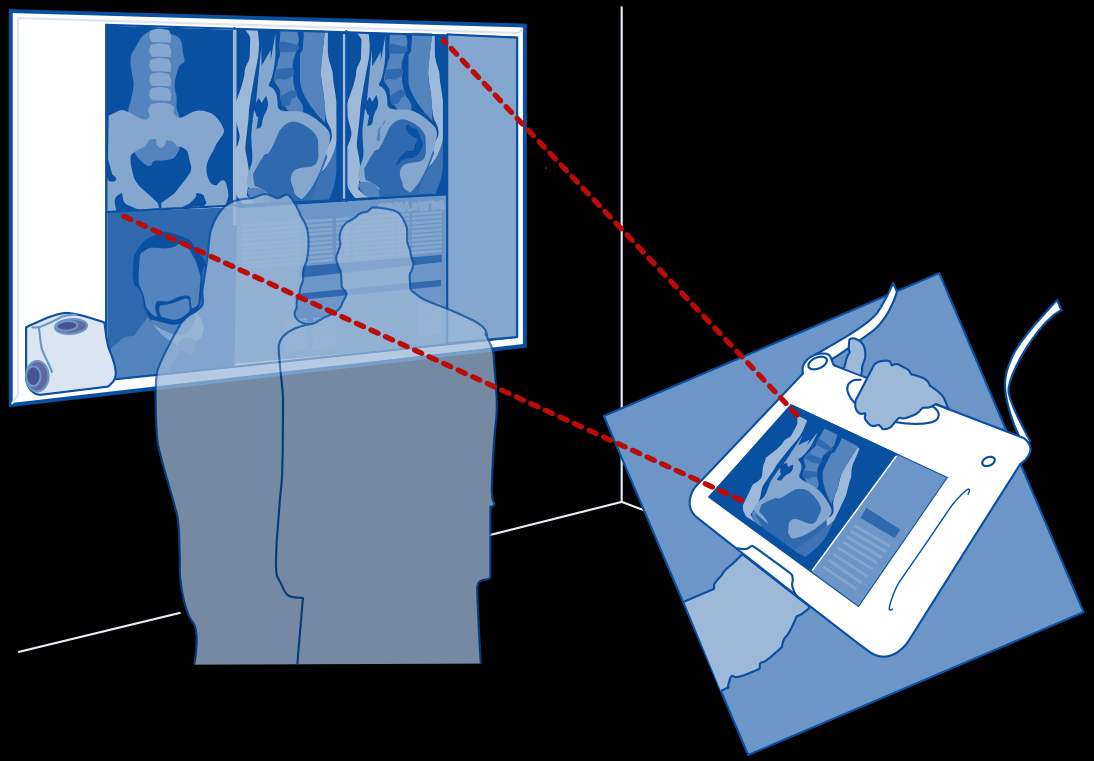
A network architecture, which takes advantage of HealthNet's networked computing power to coordinate storage and processing requests in real-time. The System Broker's Clearinghouse prioritizes requests, which are fulfilled via the Procurer, and should significant capacities be needed, the Choreographer can take advantage of the grid to organize massive storage and processing grids.



C.A.R.E *Context-Aware Rendering Engine*

Cornerstone Application

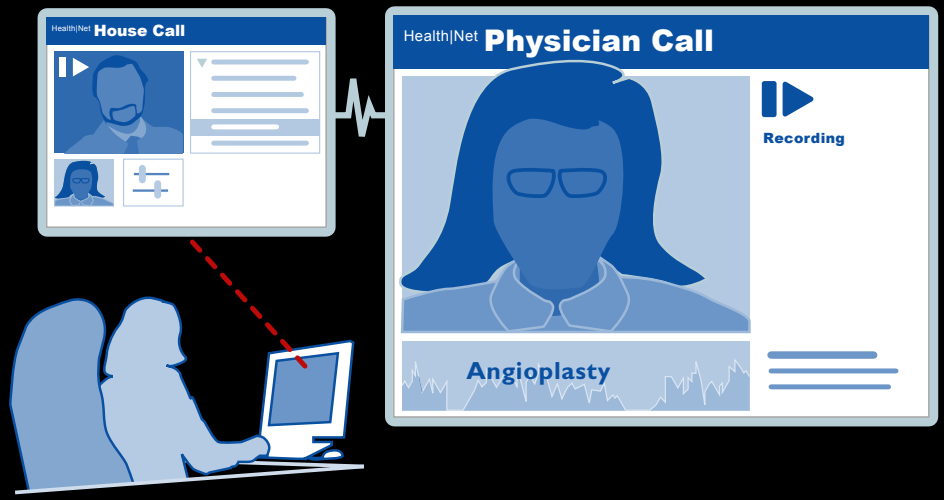
A device-independent rendering engine used each time a request for data is made. C.A.R.E determines the type of data requested, then the rendering constraints for the intended device. Data rendering is performed over the network, reducing the amount of processing power the user's device must perform.



Commsurance

Cornerstone Application

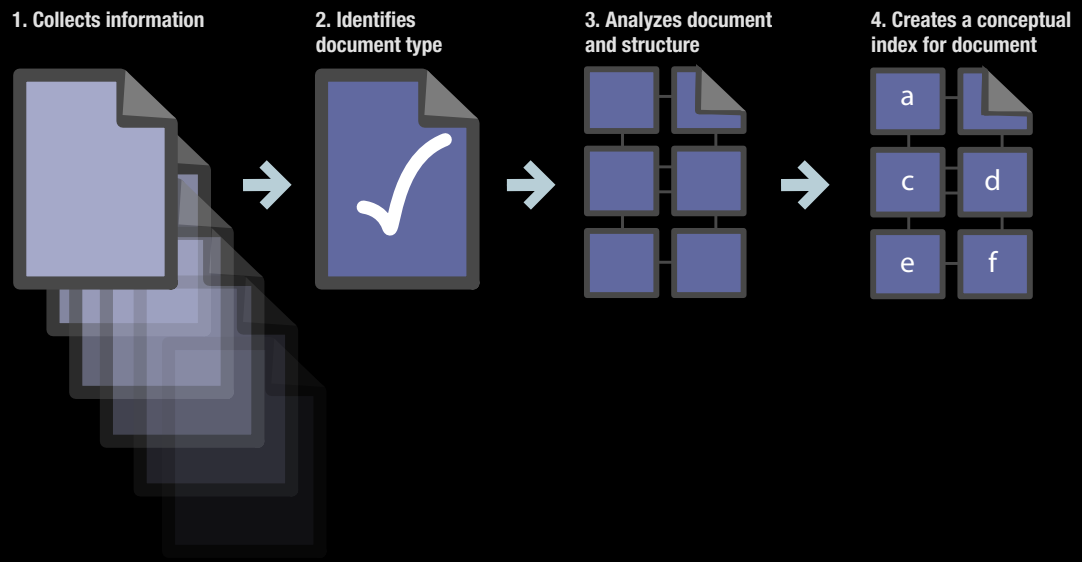
Assures secure and timely communication over the network of multiple media types: text, voice, or video. Commsurance prioritizes communication resource requests ensuring critical communications, such as tele-surgey, aren't interrupted.



Effective Aggregator

Cornerstone Application

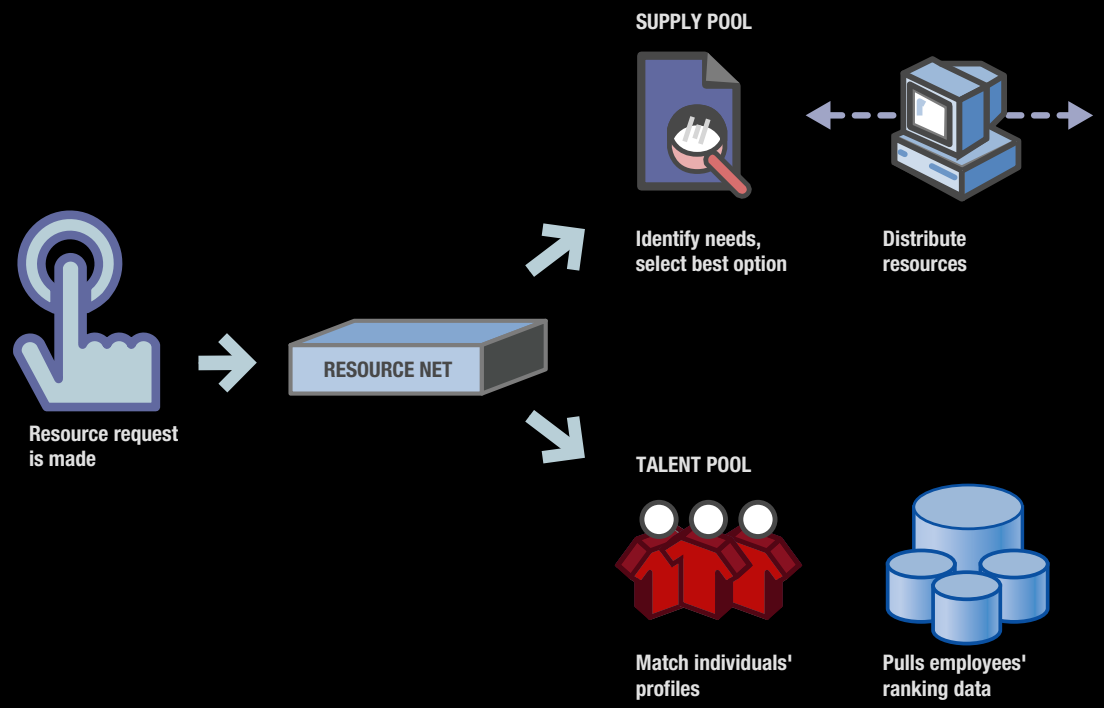
An integrated set of software tools and procedures that identifies and indexes data stored within the various systems connected via HealthNet. Unlike the simple indexing of web search engines, Effective Aggregator classifies information based on content and its structure. In doing so, the system integrates disperse systems without going through the costly efforts of custom integration.



ResourceNet

Enabling Application

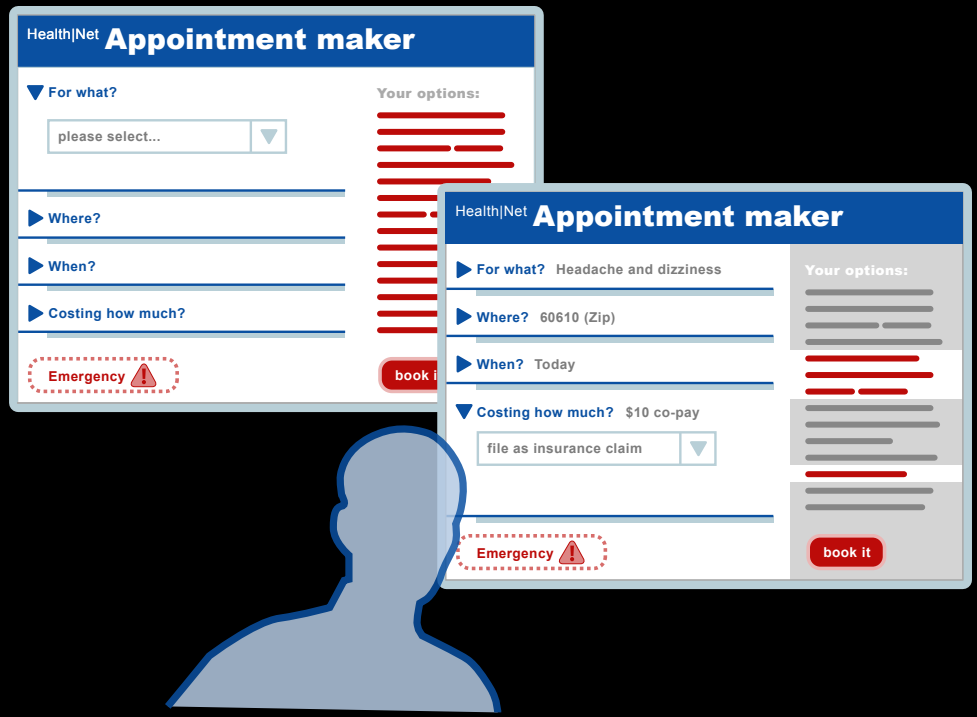
An integrated system of tools that provides means to acquire and allocate the broad range of physical and human resources needed by healthcare organizations participating in HealthNet. In addition to aggregating suppliers, ResourceNet enables health entities to share and trade resources with each other.



Med Pathway

Enabling Application

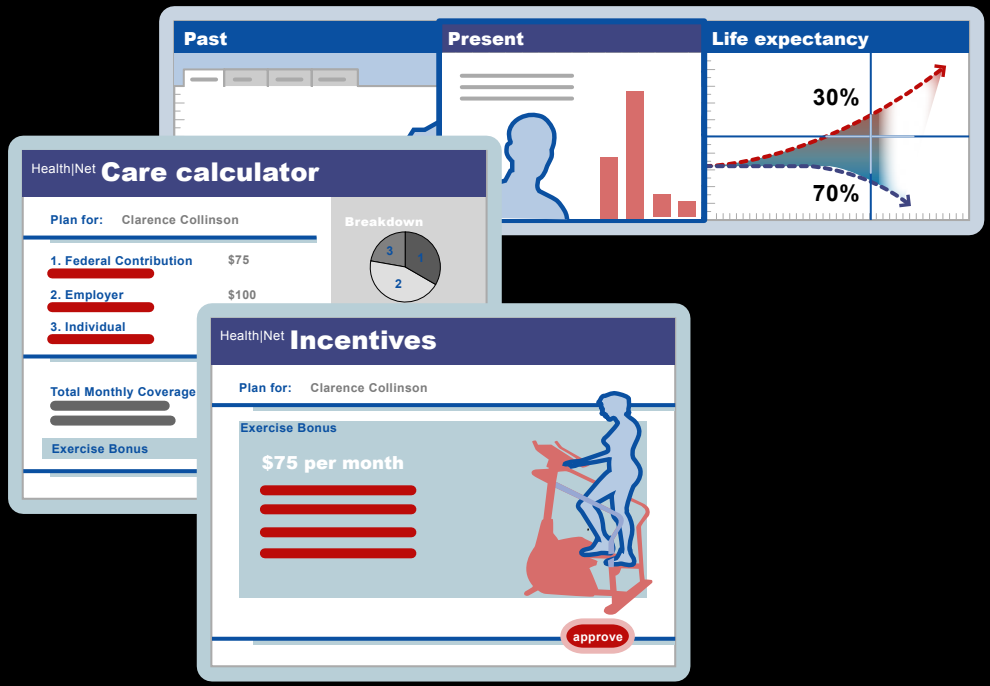
Supports patient and practitioner decision-making by leveraging the vast amount of data accessible via HealthNet and mapping viable alternatives. Empowering patients and practitioners with the ability to make informed decisions will increase the level of care while decreasing the costs associated with delivering expertise.



SafetyNet

Enabling Application

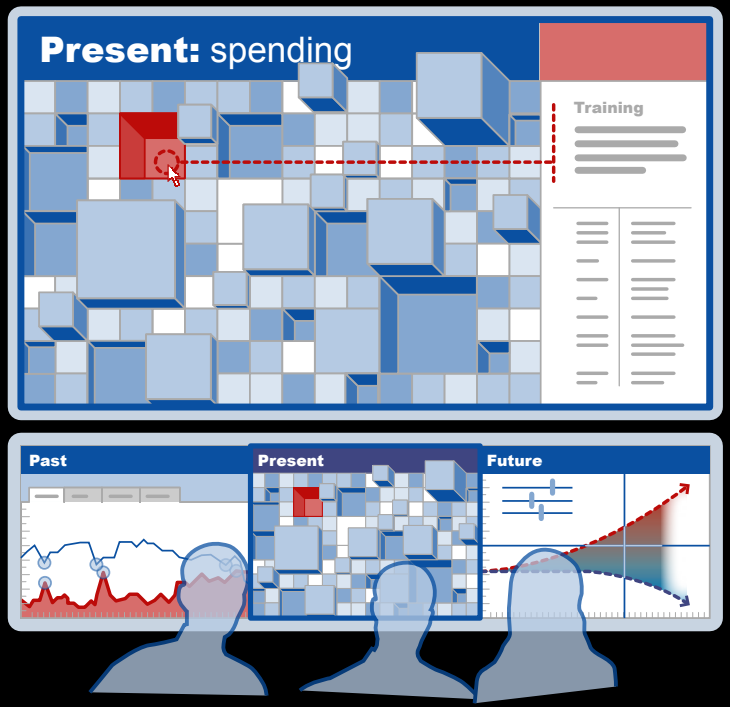
An integrated system of tools that provides data on the personal and financial costs of not taking preventive measures and treating the uninsured. Includes a forecasting program that creates powerful incentives to increase positive health behaviors by displaying potential health situations if a adverse lifestyles are not altered.



System Dashboard

Enabling Application

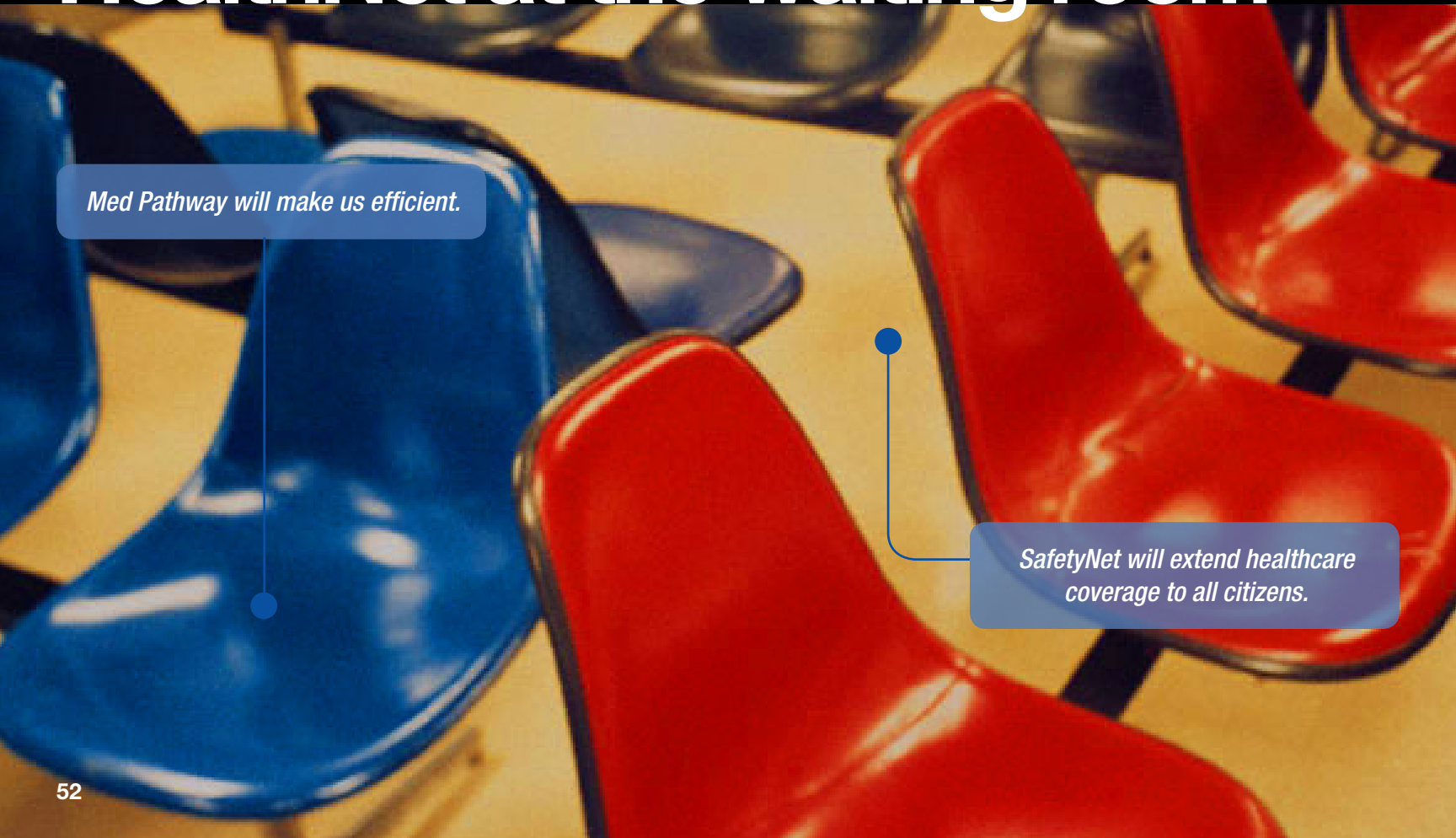
A real-time information management system that displays the capabilities, demands, and risks to HealthNet administrators and local medical officials. Administrators and officials can de-risk a community's health infrastructure by quickly identifying risks, diagnosing causal relationships and evaluating potential mitigations.



HealthNet at home

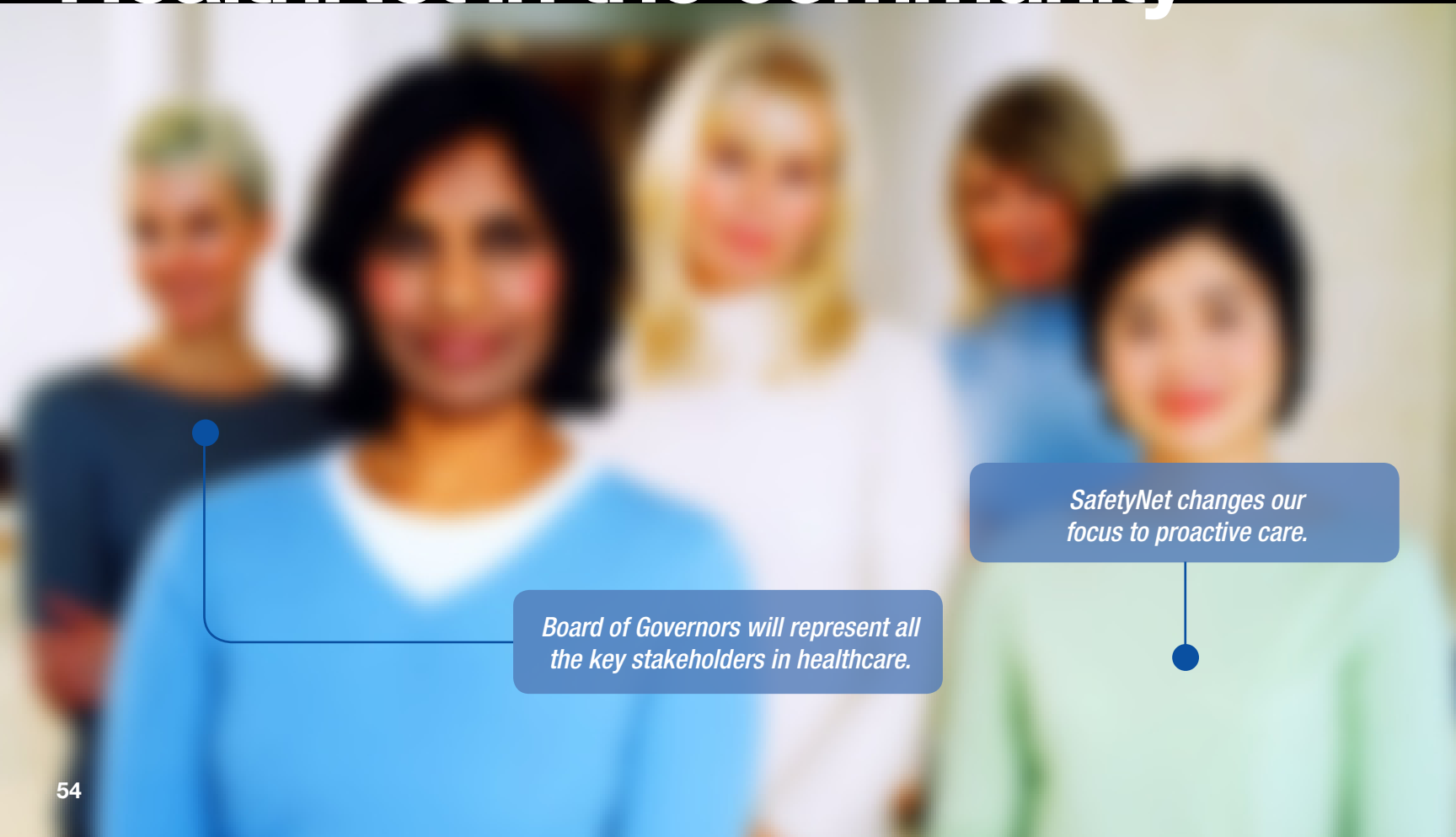
HealthNet in the ambulance

HealthNet at the waiting room



HealthNet in the ER

HealthNet in the community



Board of Governors will represent all the key stakeholders in healthcare.

SafetyNet changes our focus to proactive care.

HealthNet at the lab

Effective Aggregator will connect researchers with rich data.

System Dashboard will make us better prepared.

HealthNet Infrastructure is:

Systemic, *enables networked healthcare in a range of environments*

Adaptive, *flexible and integrated, not rigid and atomic*

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the end