Idiom and the Collaborative Health Showcase

Mark Norton, Idiom

David Crompton, Healix and HealthPhone

www.idiomsoftware.com

The Call to Action

Traditional approaches

- Are internally focused and bounded – reinforced by inward looking IT development methodologies
- EDI works, but needs a primary, powerful sponsor to drive through rigid systems at high cost
- Bespoke point-to-point collaborations starting to appear but often splinter the process and aim to lock out competitors
- Demonstrate the value of collaboration but can't adapt quickly or cheaply enough

Collaboration requires

Content flexibility to allow many different processes and approaches

Low cost development and participation

Scalable to address the needs of many players

". . approximately 90 percent of the more than 30 billion point-to-point healthcare communications that occur in the United States each year are conducted by fax, paper mail, or phone"

The PriceWaterhouseCoopers whitepaper, Reactive to Adaptive: Transforming Hospitals With Digital Technology

The Collaborative Showcase

A new generation of community processes is bringing increased efficiency to many sectors, including Health

A community process is a collaborative process that coordinates the actions of multiple participating groups and systems to achieve the communities goals

This presentation will show

- An example of a new collaborative process serving the Health sector
- The role of a decisioning tool within the collaborative process
- The characteristics required of a decisioning tool in support of collaborative processing

Decisioning within the collaborative process

A collaborative process by definition involves multiple parties

Each party will require decision making 'proxies' to perform its version of:

- *Validation*
- *Problem analysis*
- *Solution, product or treatment selection*
- *Authorization/Approval*
- *Costing/Pricing*
- *Workflow adjudication*

Automation of decisioning is essential

To promote straight through processing

To ensure more intelligent processes

To avoid human wait times in otherwise immediate processes

Decisioning is a term to describe a new class of automated function that exists only to provide decisions to other applications . . Decisioning can be complex and multi-layered.

Decisioning tools within the collaborative process

A decisioning tool within a collaborative process ...

Must have certain characteristics so that it can provide role separation between each process participant and the process managers

Decisioning connects to the process via a simple, standardized interface 'contract' which mutually binds both the decision designer and the collaborative process

It should deploy discrete, 'small footprint' decisioning components

Development and testing of decisioning behaviour is totally independent of the process – the decision designer is constrained only by the agreed interface

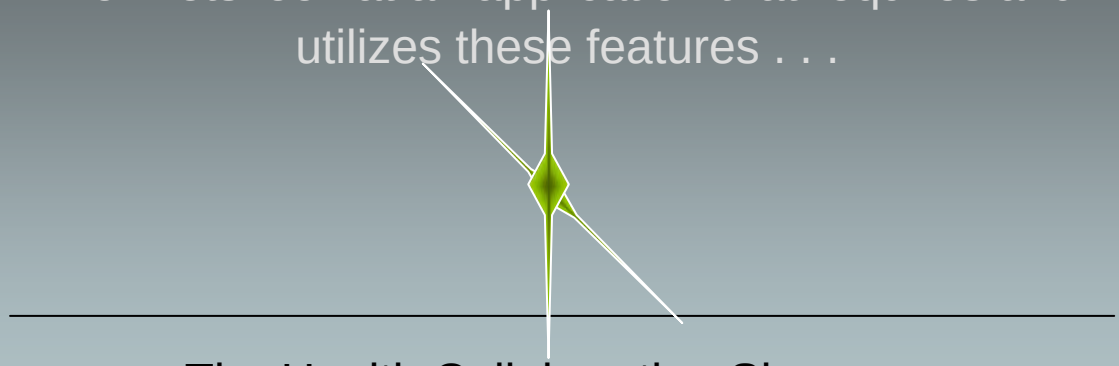
Each component should be functionally complete, implementing a complete decisioning process – all of the decisions required in one execution

The deployment process must also support detached management of decisioning behaviour and timing, subject only to the constraints of the interface

Execution must be industrial strength, both fast and scalable

Third party audit must be supported through automated documentation and change histories

Now lets look at an application that requires and utilizes these features . . .



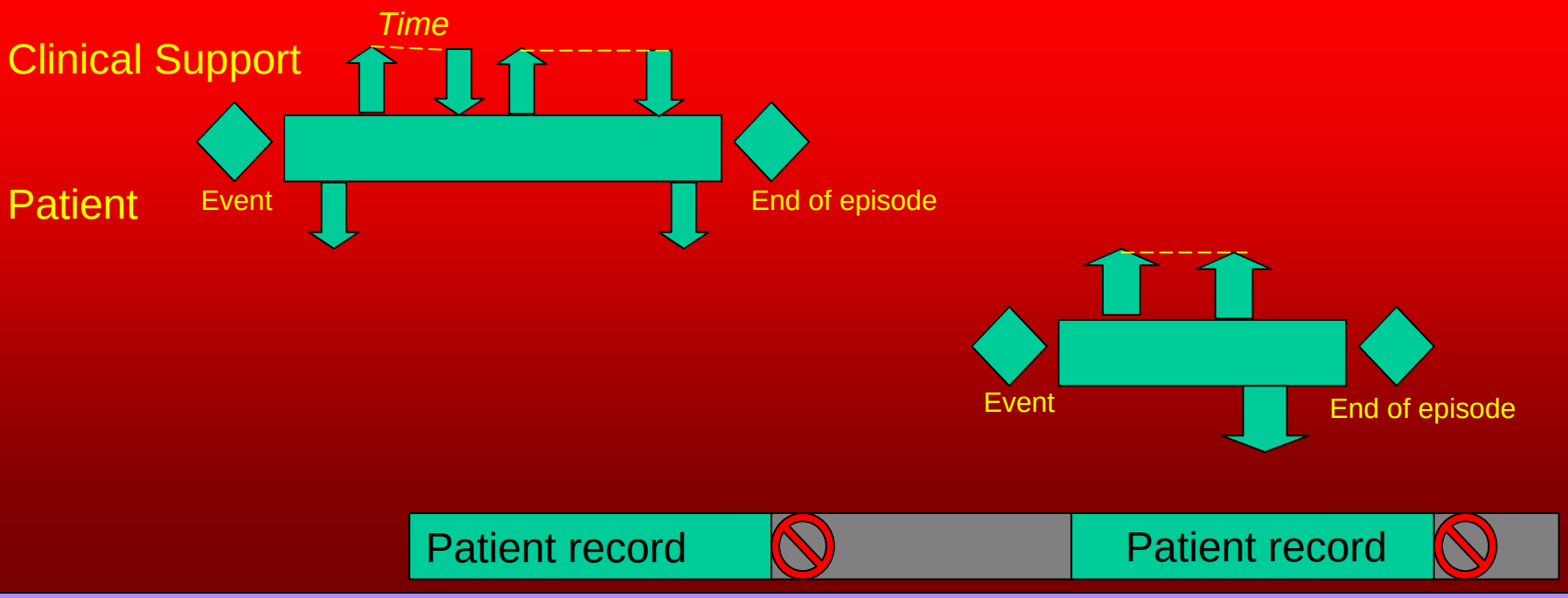
The Health Collaboration Showcase

Microsoft Collaborative
Health Customer Showcase

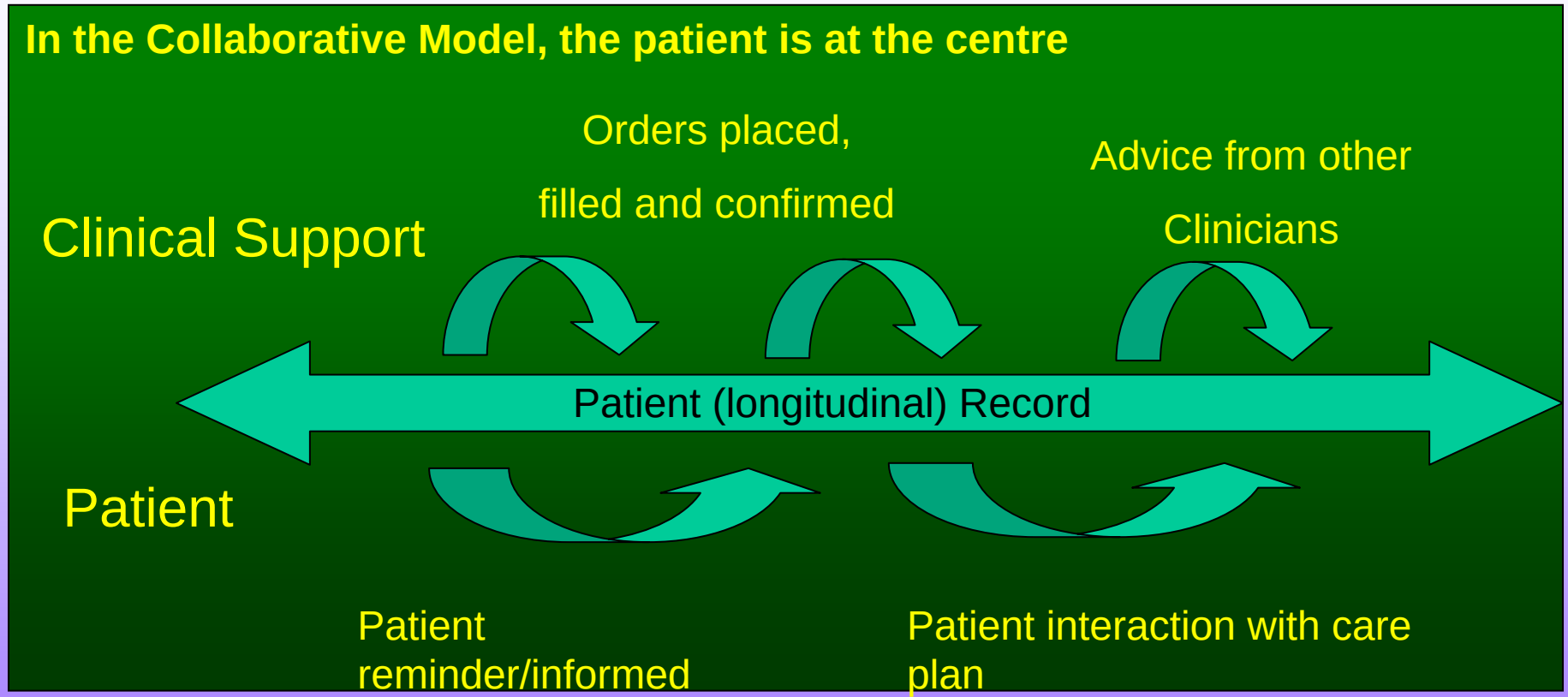
Making Collaborative Health a Reality

"A Fragmented World"

In the current "world", care episodes and information are fragmented



Our ideal "Collaborative World"



Current manual processes are costly:

Health phone

Referral	Schedule specialist assessment	Patient assessment	Order lab tests	View test results
Paper based referral	Schedule appointment at mutually convenient time	Request manual patient notes	Complete admin components of lab test form	Admin receive test results
Key referral data	Phone/letter to patient to confirm appointment	Complete assessment form	Select required tests on form	Locate patient file
Manual confirmation to referrer	Reminder call/letter re appointment	Manually copy patient details onto assessment form	Fax/send form to lab	Notify clinician of results
Triage referral		File hardcopy record	Give patient a copy of the form	Match the order to the results
			File test order for later matching	Analyse the results
			(confirm receipt of lab test order at lab)	File results into patient record
			(remind patient to have tests)	Manually file patient record
			Update manual patient notes	(match for billing purposes)
			File patient notes	

Equivalent processes in a non-computerized setting

And take time away from care:

Health phone

Decision support	Plan care	Prescribe drugs	Patient interaction with care plan
Read guidelines	Convert guideline recommendations to treatment actions	Complete admin components of prescription form	Schedule regular follow-up visits
Assess case against guidelines	Document treatment actions	Select required drugs on form	Phone/write to patient to remind re performing tests etc
Recommend actions	Manually schedule treatment actions	Fax/send form to pharmacy	Respond to abnormal results at scheduled follow-ups or acute events
Document analysis and store	Educate patient re treatment actions	Prescribe drugs	
Approve and supplement recommended treatment	Enter bring-ups in manual file	Give patient a copy of the prescription	
Review and finalize guideline findings	Finalize care plan actions	File prescription order for later matching	
		(confirm receipt of prescription at dispensing location)	
		(remind patient to collect prescription)	
		Update manual patient notes	
		File patient notes	

Equivalent processes in a non-computerized setting

'Collaborative Health' puts time…

Health phone

Referral	Schedule specialist assessment	Patient assessment	Order lab tests	View test results
Triage referral	Schedule appointment at mutually convenient time	Complete assessment form	Select required tests on form	Analyse the results

Value-added clinical steps

~~Paper based referral~~	~~Phone/letter to patient to confirm appointment~~	~~Request manual patient notes~~	~~Complete admin components of lab test form~~	~~Admin receive test results~~
~~Key referral data~~	~~Reminder call/letter re appointment~~	~~Complete assessment form~~	~~Fax/send form to lab~~	~~Locate patient file~~
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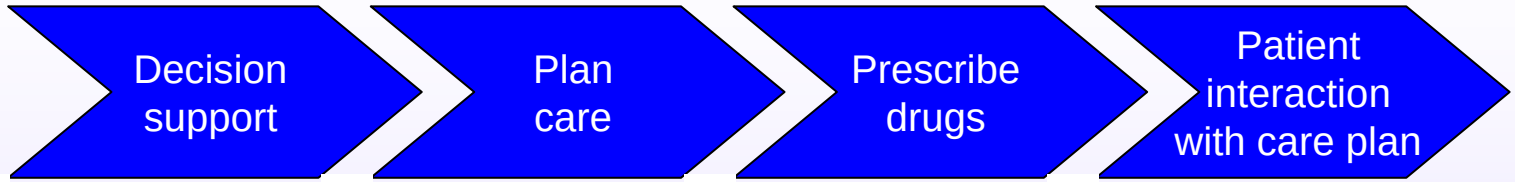
			~~File patient notes~~	~~(match for billing purposes)~~

Redundant (manual) steps

… where it adds value!



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Redundant (manual) steps

An even more ideal world

- **Wouldn't it be even better if all of this was:**

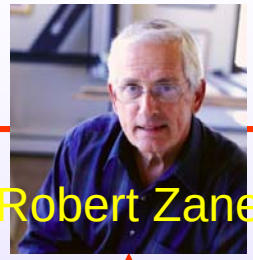
  Standards based
  Rules centric
  Private and secure
  Off the shelf and low cost
  Easy to implement
  Multi-organizational / RHIO focused
  Plug and play

- **So that's what we set out to do**

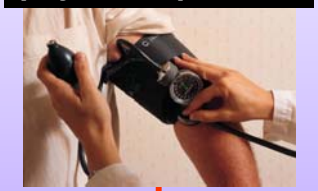
Collaboration Overview

- **Use "off-the-shelf" technologies to enable an HL7 V3 compliant flow of information between settings of care and information systems for a chronic disease (diabetic) patient:**
  - primary
  - secondary
  - tertiary
  - clinical support
- **Incorporates 10 'collaboration points' between 6 vendor systems**
- **Uses Rules Technology to augment a 'plug and play' infrastructure**
- **Enables mobile patient interaction with their care plan**

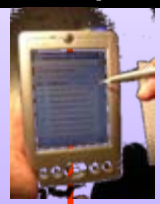
Overview of Patient Flow



Presents at family physician practice



Active management of care plan



Presents at emergency department

Family Physician

Electronic referral to regional diabetes service

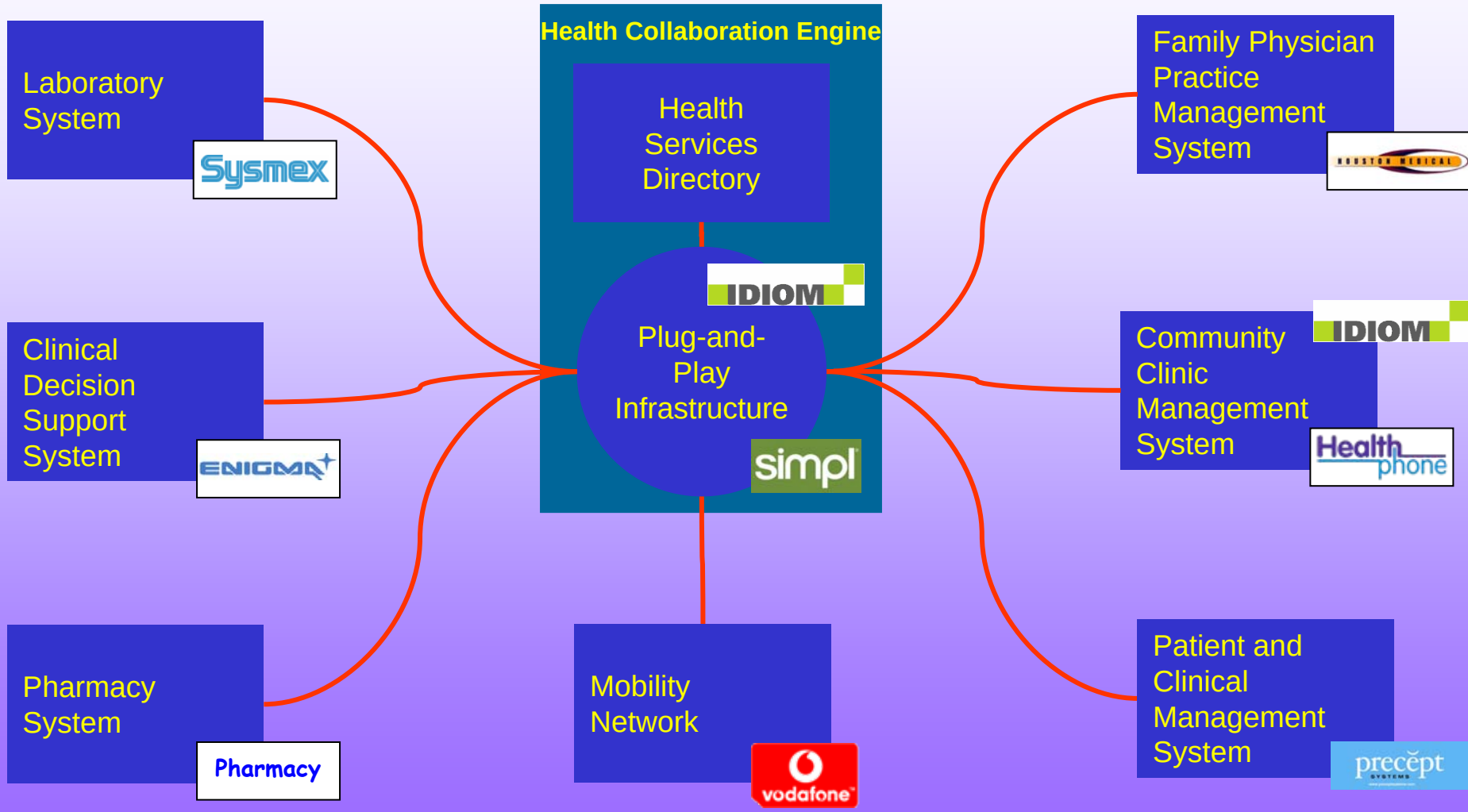
Community / Ambulatory

Cardiac event in a tertiary setting

Retrieve EMR

Electronic discharge summary

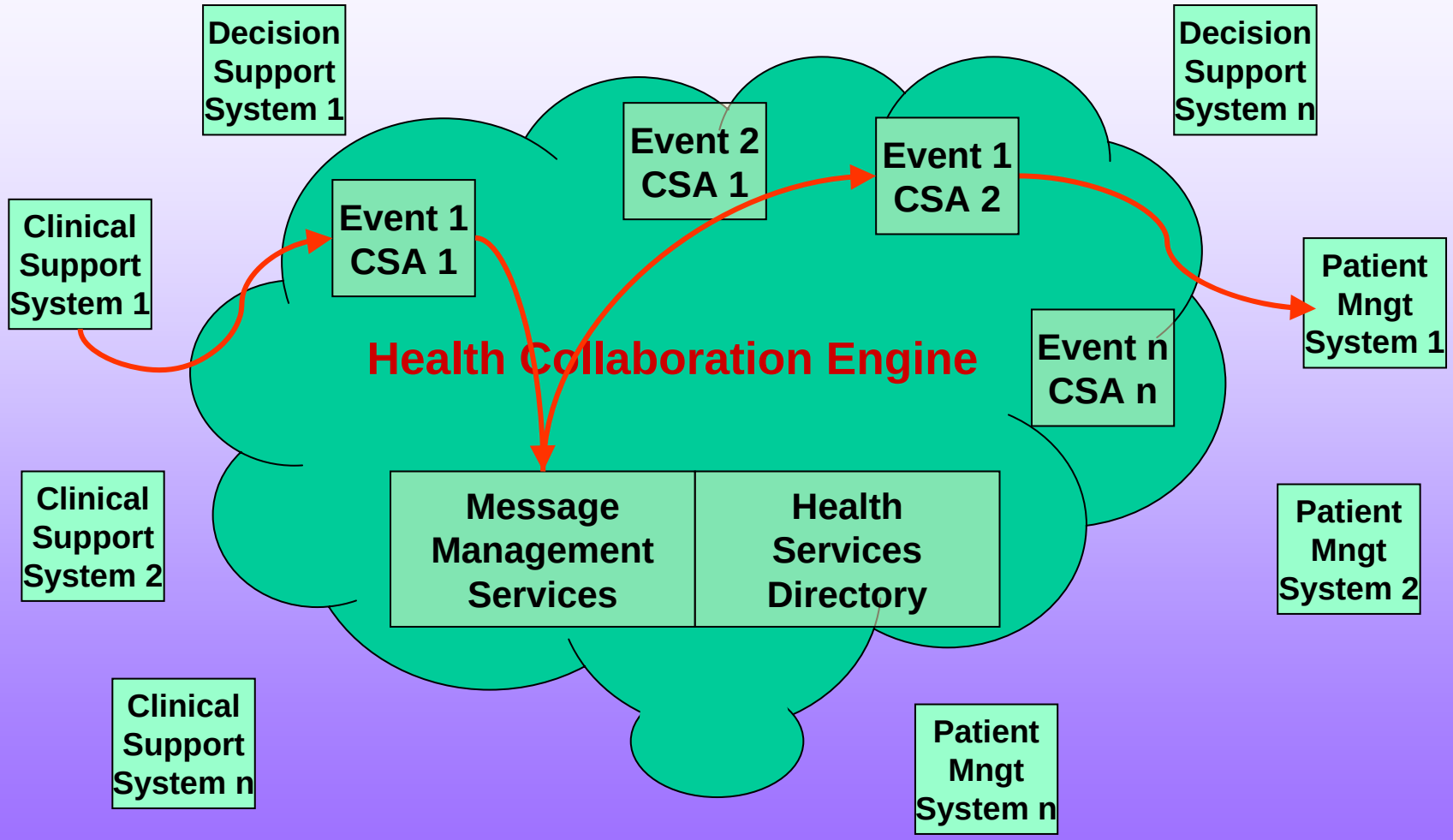
Overview of Systems Collaborating



The Technical Challenge

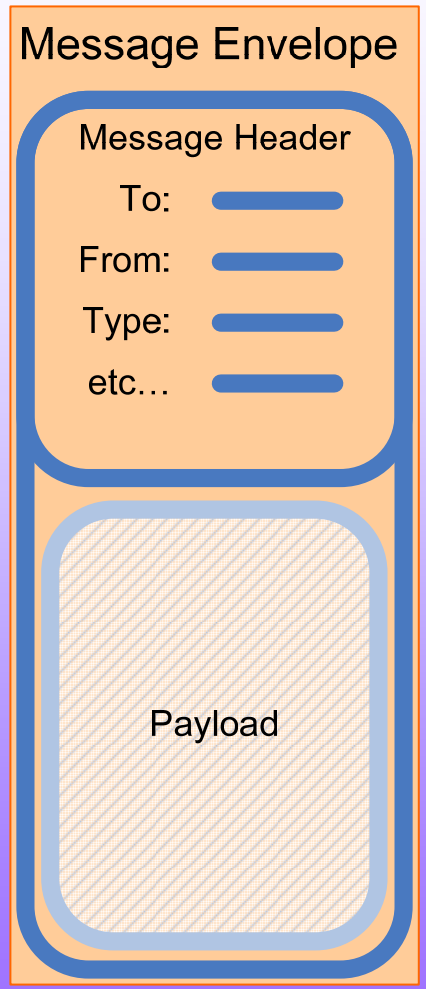
- **Provide an integrated view of information from disparate systems**
- **No lead system ie no single central database**
- **No superset of information/ no single record source**
- **The “plug and play” challenge from Microsoft**

"Plug and Play" Conceptual Model



CSA = Collaboration System Adaptor

Messaging approach

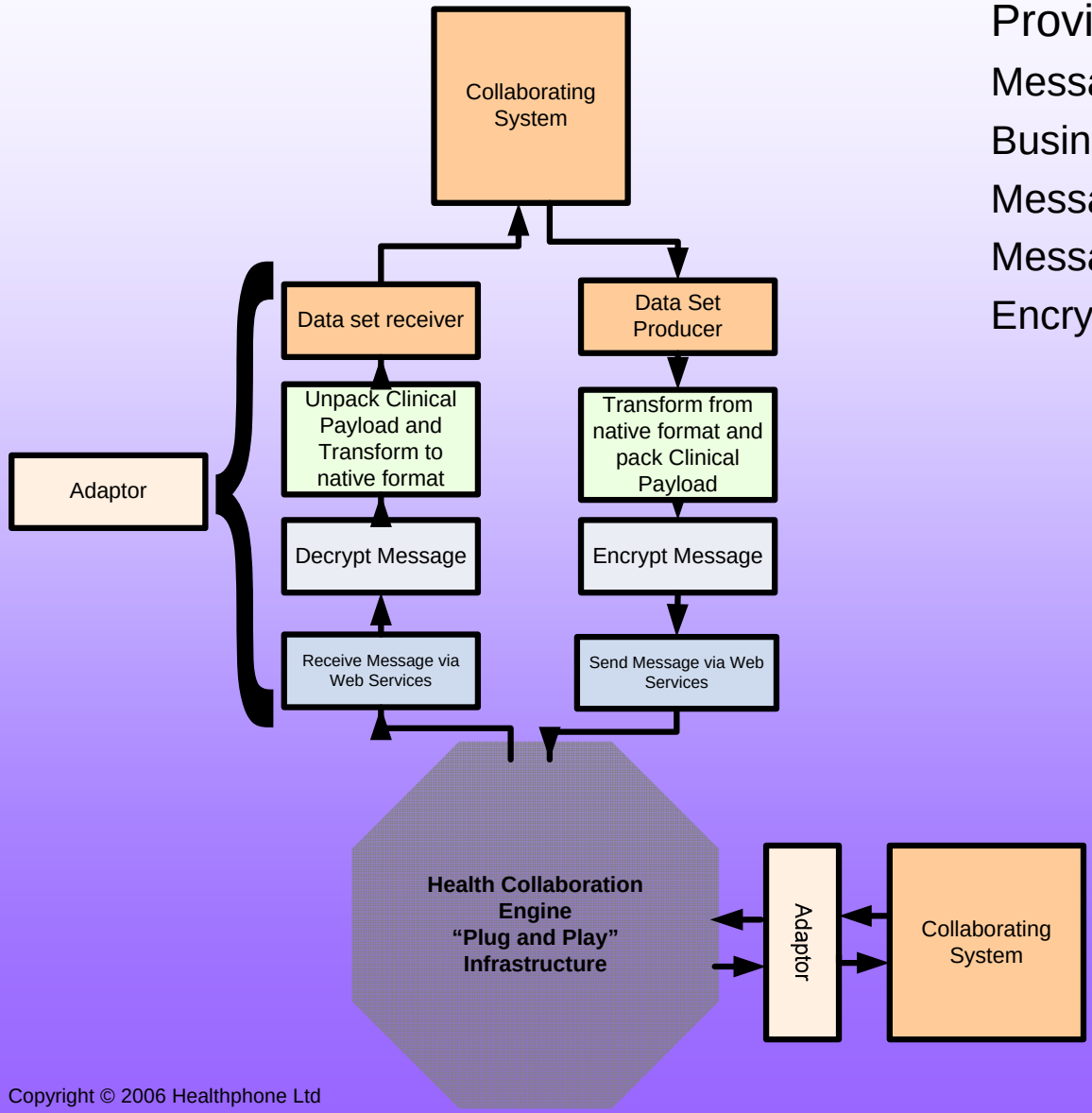


Clinical payloads are HL7 V3 compliant as far as possible

Also use same format for Health Services Directory non-clinical payloads

The payload is encrypted and not accessible to the Collaboration Engine

Collaboration System Adaptors



Provide

Message transport protocol translation

Business Rules Intelligence

Message protocol implementation

Message content mapping

Encryption / decryption

Collaboration Technology

- **Orchestration through BizTalk 2006**
- **Business Rules through Idiom**
- **Development in Visual Studio 2005**
- **Collaboration adaptors depend on the technologies in collaborating systems**
- **Collaborating systems use .Net, ASP, Cold Fusion, FoxPro, and Healthphone's use of elements of the MS Office and Server stack**

Example: Patient engagement in community based care

- **Situation**:

  Patient's care plan identifies goal range for blood glucose results. Patient submits blood glucose results to Healthphone daily via mobile phone. Out of range results trigger alerts to patient & clinician via text message

- **Care setting: Community based diabetes clinic**

Showcase Highlight:

Patient Engagement In Community-based Care

Situation: Patient's care plan identifies goal range for blood glucose results. Patient submits blood glucose results to Healthphone daily via mobile phone. Out of range results trigger alerts to patient & clinician via text message.

Care Setting: Community-based Diabetic Clinic

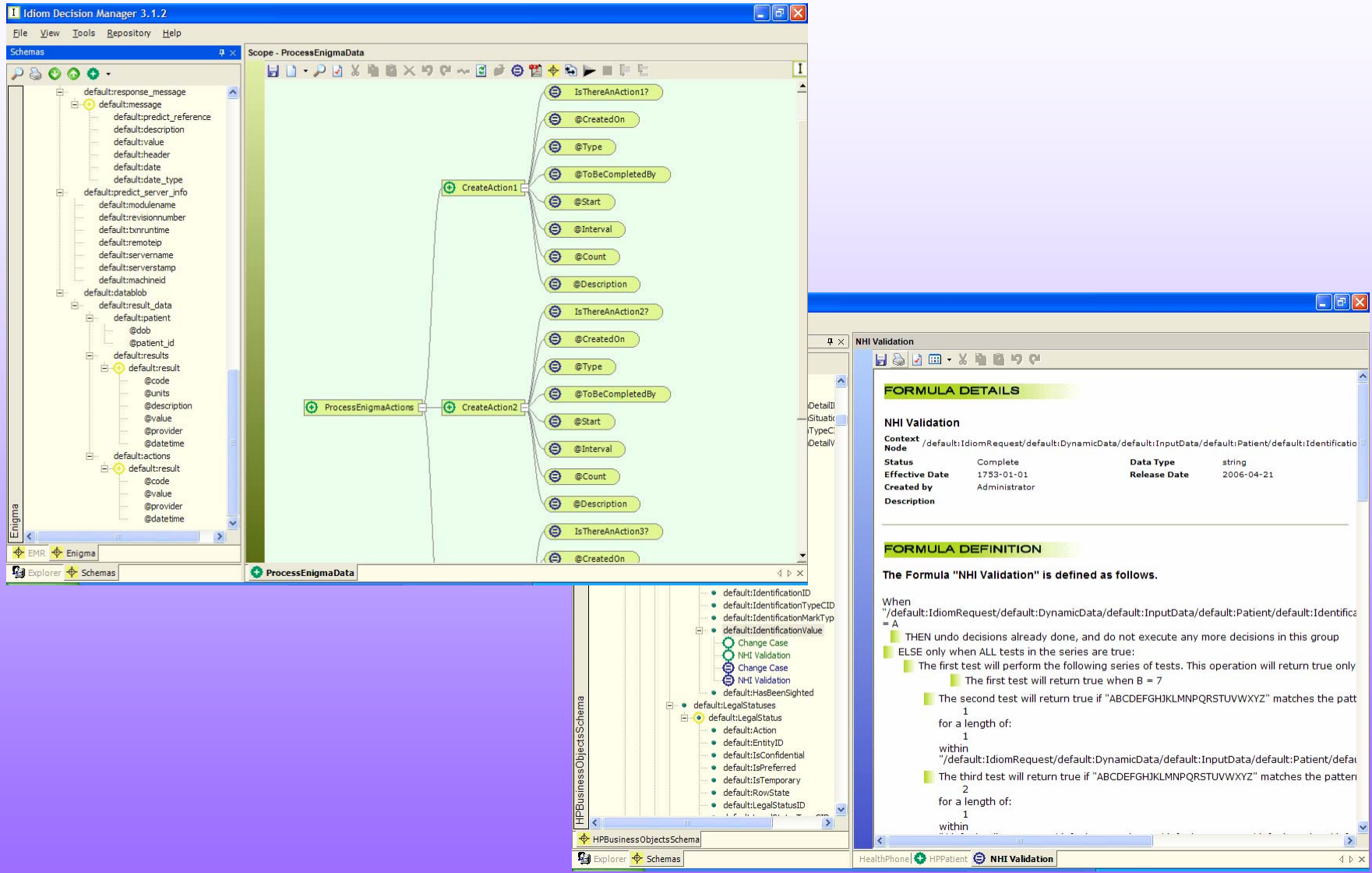
Microsoft
Your potential. Our passion.

Business Rules Approach

- **BizTalk used for orchestration and transport**
  - Developer's tool
  - Suited for management of the point to point messaging

- **Idiom used for business rules / business intelligence**
  - BA / Clinical tool
  - Allows business rules to be owned by those that define and use them
  - Provided rapid turn around for rule deployment / changes

Idiom



Benefits

- **Reduced administration and “low value” time spent by clinicians**
- **Business rules / logic is controlled by the clinicians / BAs**
- **Reduction in errors, mismatched and lost results, non-fulfilled prescriptions**
- **Complete information at point of care – in facility or in community**
- **Regional integration and continuity of care**
- **Confident management of community-based patients by exception (driven by rules)**

What have we achieved?

- **Pragmatic governance of a complex multi-vendor collaboration project**
  (RHIO implementations)
- **Federated, standards-based, patient oriented, Electronic Health Record**
- **Use of “off the shelf” technologies to reduce cost and risk**
- **Aligned to support clinical priorities**
- **Delivery of “Plug and play” capability**
- **Patient engagement in their own care using mobile devices**

Key Lessons Learned

- **Strong programme management is essential**
  (supported by a shared vision of the outcomes from the governance group) particularly to manage competing vendor priorities - RHIOs

- **Clinical needs must drive the business rules and collaborations**

- **Collaboration standards need to be set and enforced**

Conclusion

Collaborative Processes

- Are complex and intelligent processes that link multiple parties to achieve community objectives
- Require decision automation in order to step up from simple workflow coordination
- Elevate technology based decisioning to the level of corporate proxies – so the process must allow independence management and deployment of the decisioning proxy
- Are the key to improving efficiency in process bound sectors like Health

Decisioning components

Small footprint

Functionally complete

Independently developed and deployed

Simple (re)attachment to the process

Component based decision automation is the key enabler of innovative community processes that have the potential to improve patient outcomes and reduce costs across the health sector

Thank you . . .