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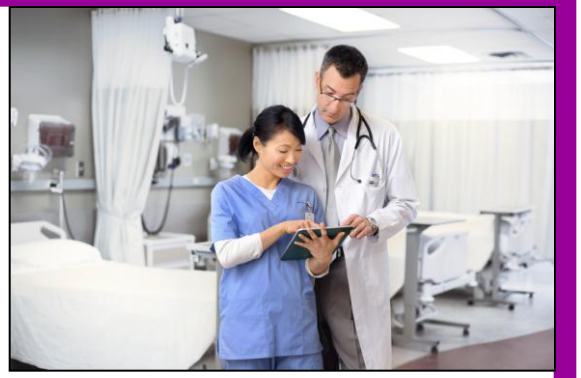

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Migrating from eGate to WebSphere Message Broker

Date: June 2012

"It's all about interoperability"

- …..a little bit about me (of course)
- What's the vision?
- What were the key drivers for change?
- How did we go about achieving it?
- Where are we now?

The Challenges

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- Creating a view of all patient information through a single Portal
  - Available on all devices
- Drive to reduce costs whilst improving patient outcomes/safety
  - Reduce dependency on legacy Clinical 5 applications
  - Move towards Straight Through Processing
- Providing a platform and infrastructure that can react to change and take control of that change
  - Service Oriented Architecture
  - Being as vendor neutral as possible
  - Interoperability both internally and externally …. The pressure is on!
- Taking control of our paper records through EDM
- Ability to analyse unstructured text/data and convert it into structured content

The Patient Journey

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Patient Journey

Function	Description
Referral	From any source (Primary, Secondary, Tertiary)
Assessments	Any evaluation of the patient or something impacting on the patient. This includes observations, risk assessments such as falls or MUST, infection control status, checklists such as preop and pre theatre checklists discharge preparations and initial assessments on admission (both medical nursing and AHP). Any assessment may be repeated as indicated or be stand alone.
Investigations	All tests such as pathology, radiology, heart and lung function and neurology etc performed to establish information that will inform management of the patient. Interventional diagnostics (eg radiology and endoscopy) should be included within Interventions.
Scheduling	Any system that books patients for anything or that stores dates for patient interaction and is used by staff.
Drug Ordering, Prescribing, Administration	E prescribing systems
Plans/ Interventions	Treatment plans for the patient including care plans. Procedures undertaken to treat the patient. This may include surgery, endoscopy, radiological intervention or therapy such as physio, SLT or OT. Drug therapy is included elsewhere but is also recognised as an intervention.
Evaluation/ Review	Monitoring of plans and patient condition for effectiveness and progress. Day to day clinical noting.
Discharge	Discharge covers all aspects related to the discharge of the patient from any episode or attendance.
Folllow Up	Planning care to be given in the future either at the hospital or in the community. Recording the delivery of the care planned
Communication	Any routine or ad hoc communication between health professionals eg letters etc Any communication between partner agencies providing care eg social services or education Any clinical communication not covered under other categories

What is Straight Through Processing?

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- Data is captured and entered at the point of care not retrospectively
  - Don't let the Tail Wag the Dog i.e. don't develop clinical solutions based on corporate requirements, ensure that the clinical needs are met and that the bi-products are added corporate value that can also be used for clinical reporting and research
  - Data capture tools need to be provided that add clinical value and are easy to use
  - All data is captured and managed electronically
  - All data is enriched along the patient's journey
- Coding data is automatically mapped wherever possible
- External reporting is managed electronically with no manual intervention
  - Work towards common standards of external connectivity via protocols such as HL7, don't create multiple message types that contain the same data.
- All data routing is managed electronically with no manual intervention

What is Natural Language Processing?

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NLP is at its simplest level the ability to take unstructured data and translate it into structured, searchable content

- Pros
  - Clinicians are able to work as they work now by entering plain text as they do with their current hand-written medical notes
  - Information within medical notes, discharge summaries, progress notes, handover notes etc will be made available for clinical research which in turn will hopefully improve patient outcomes
  - Clinical coding is simplified and automated through data mapping
- Cons
  - Because medical note taking is by it's nature unstructured quality is difficult to guarantee. Checking mechanisms and auditing will need to be strengthened.
  - Up-front effort is required to teach the system about content patterns. Fine tuning will always be required

High Level Architecture

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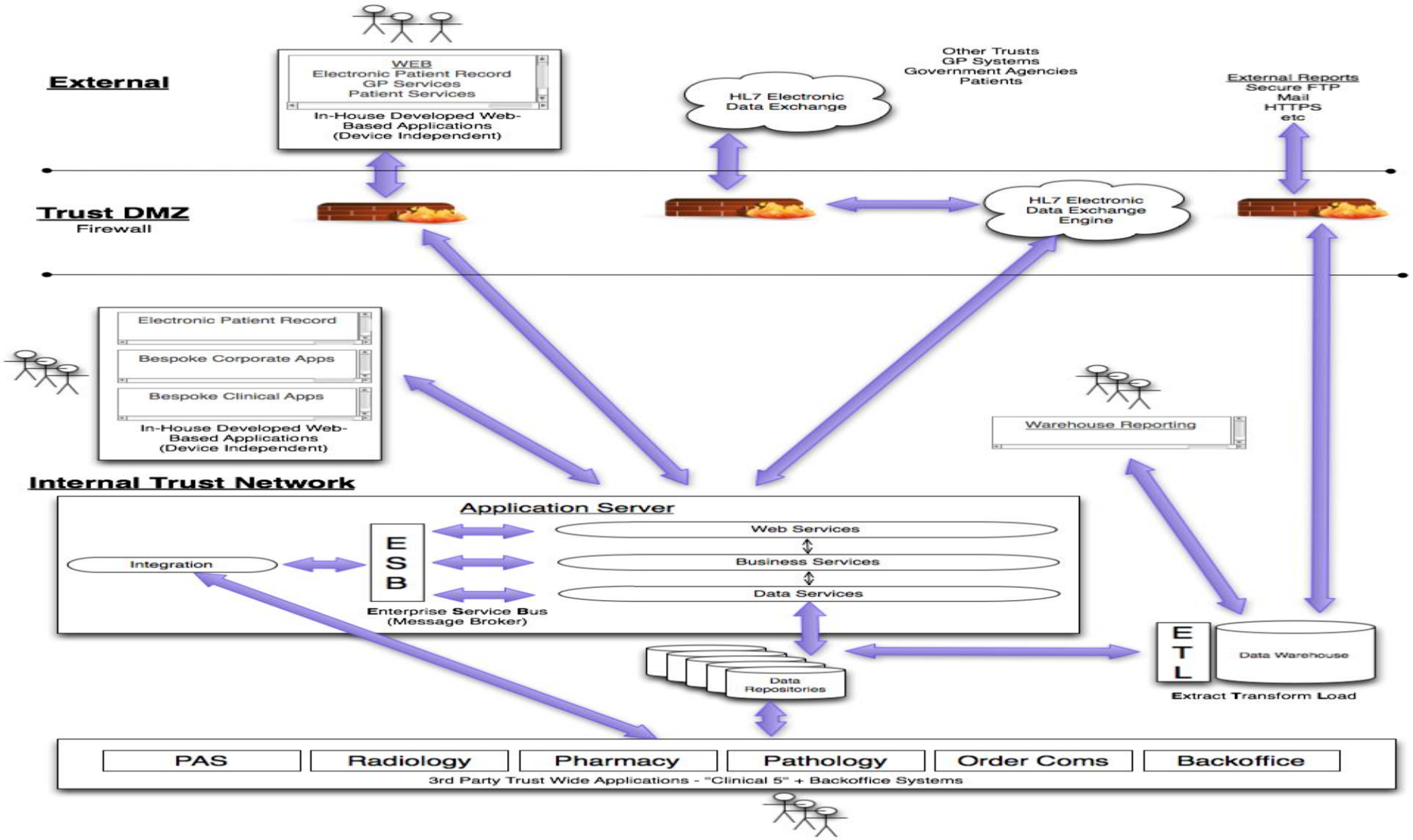

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The Drivers for STP

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- Reduce costs whilst improving patient outcomes
- Increased numbers of Sites to manage
  - Clinicians will need access to information anywhere
- Greater automation the less need there is for manual intervention
    - Fewer mistakes
    - More resource to direct at clinical opportunities
    - Better patient outcomes
    - Ability to deal with higher volumes
- Regulatory & GPs & Patients requiring more instant delivery of information
- Standardisation of output through de facto protocols (e.g. HL7). This will be driven from external pressures and competition for business
- The Trust can't ignore that although there are cultural and financial pressures that make change and automation complex and challenging, the fact is change is coming, and as other Trusts automate and provide external connectivity and access we'll have to do the same. Being part of that change is better than having it forced upon us

The Challenge

- Large amounts of manual intervention to generate a Discharge Summary
- Changing guidelines on the content of a Discharge Summary
- No clear demarcation lines on roles and responsibilities for the generation of Discharge Summaries
- Discharge Summary content is derived from paper based records (although some information is coming from the underlying clinical 5 Systems)
- The use of technology is culturally not embedded into the Trust

Visual Representation of Current Process

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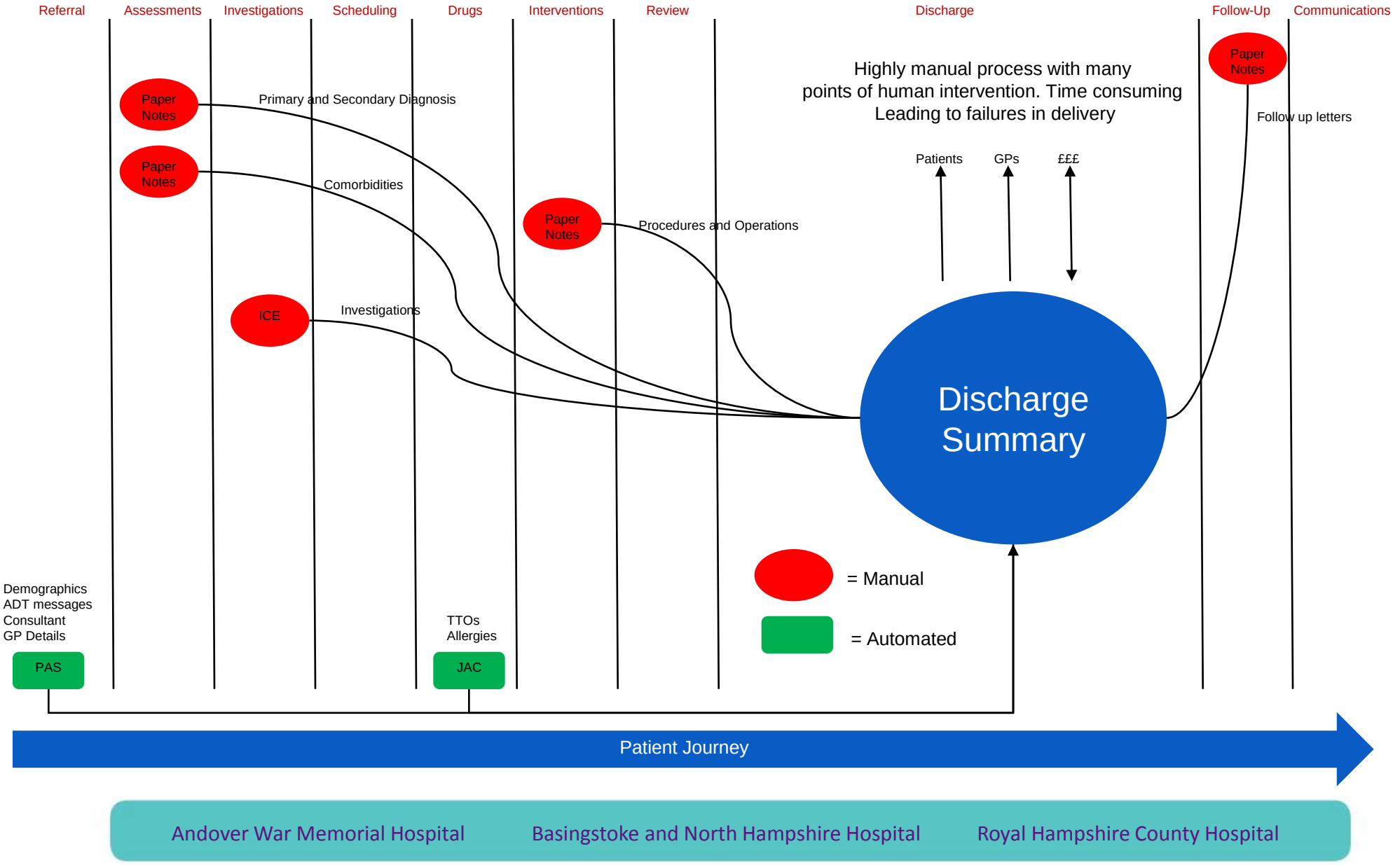

The Solution

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- Produce a gap analysis of what is already automated
- Provide solutions that offer value to the clinical community that captures data and fills the gaps
- Do not try to make the “tail wag the dog” e.g. Look at smart solutions that can deal with "Key Word" (Natural Language Processing) recognition
- Treat the eDischarge Summary as an automated report not as a separate process and seek to enrich data across the patient journey
- The output should be an automated eDischarge Summary that only requires a final verification
    - Target 80% of episodes and spells for automation
    - The remaining 20% should be exceptions where either a different automated solution is required or a decision can be taken to keep it manual as the volumes are so small to not require much resource (or where the cost of automation outweighs any benefit)
- Don't listen to people who say it's not possible

Visual Representation of Future State

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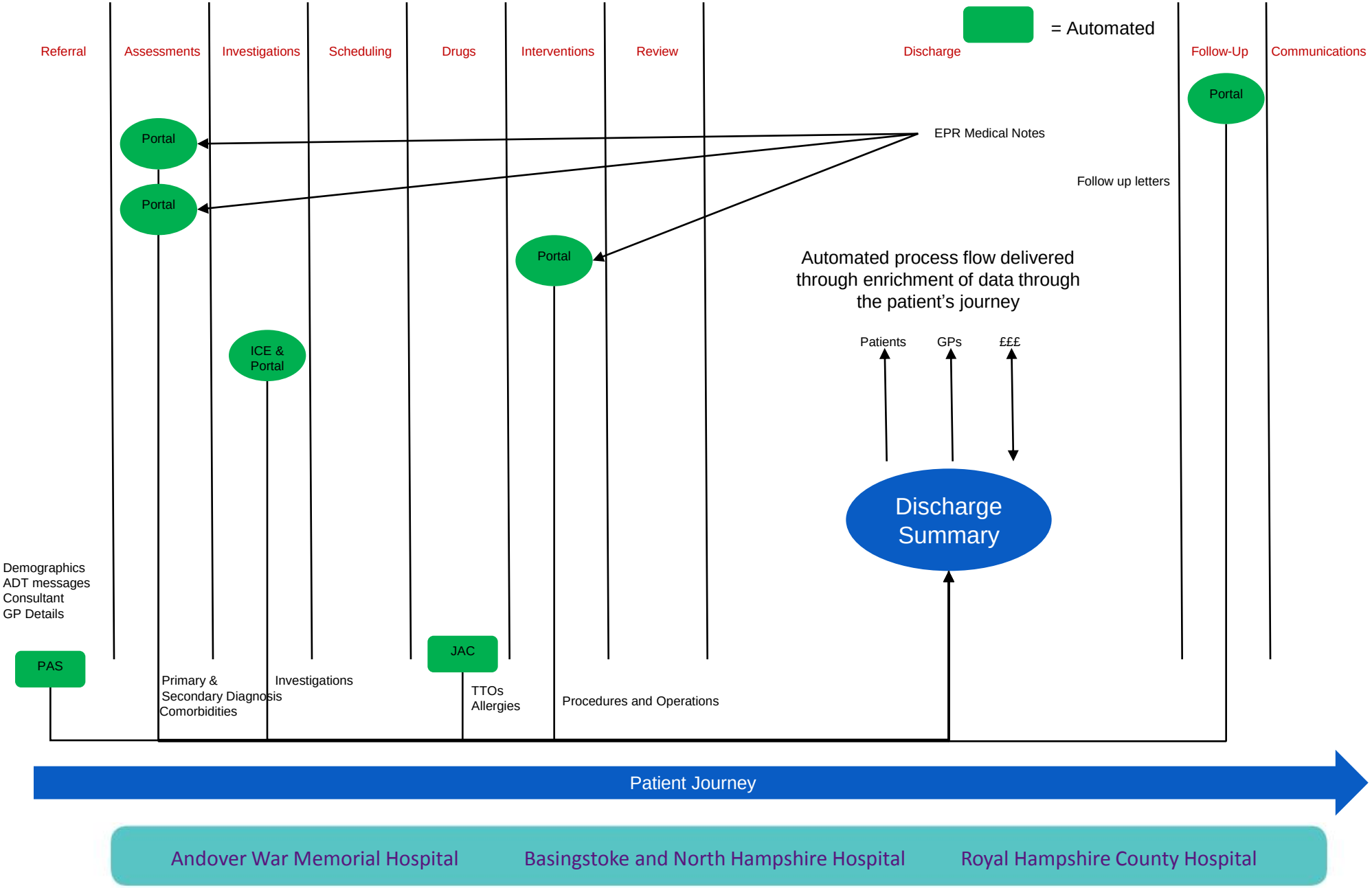

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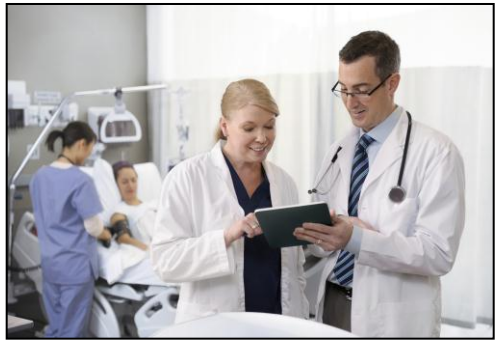

……..The Message Broker bit

Electronic Patient Record System (EPR)

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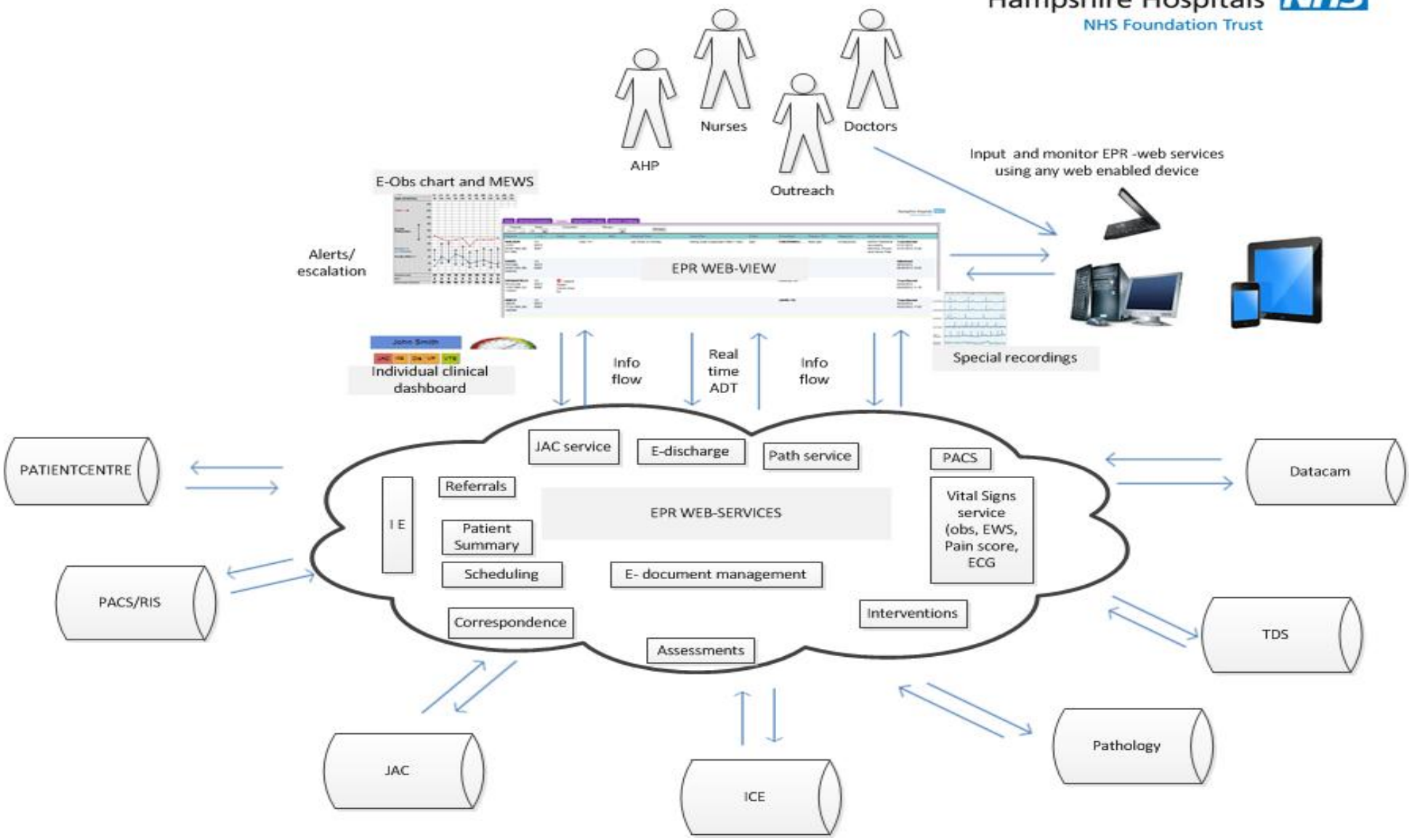

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What were the key drivers for change?

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- End of Life support for the version of eGate
- eGate was only able to run on Windows 2000
- The maintenance cost was high for the number of interfaces supported
- Support was hard to source internally
- Need for scale, robustness and ease of use
- Move to a true Service Oriented Architecture and “Best of Breed” environment

How did we go about achieving it?

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- Selecting the solution
  - Why IBM?
- Selecting a development company to work with during the migration
  - Why ThinkShield?
- Working with the 3rd party vendors during the testing phase
- All work done on a Development and UAT environment during the migration
- Zero disruption to service, seamless to the user community

Where are we now?

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- Fully integrated environment
  - All Major clinical systems using message flow
  - Bi-Directional feed between applications
  - Scalable
- Merger
  - PAS Neutrality
  - Message Broker binds the 2 Trusts seamlessly
  - Eases pressure on application transition (even with Patient ID issue)
  - IT works with the new Clinical model
- EPR Development
  - Mix between IBM Message Broker and raw JMS
  - Guaranteed delivery mechanism
  - One J2EE compliant integrated Application Server

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