National Resilience Extranet – Common Operating Picture

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Contents

1. Context and Introduction
2. Review the Aims of the COP
3. Feasibility
4. Risks and Gaps
5. Assessment, Conclusion and Recommendation

Please note: this presentation is supported by a separate paper that offers a more detailed explanation

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Context - Approach

- Available documentation was reviewed
- A sample of primary stakeholders were consulted (including Scotland)
- Reviewed CCS consultation earlier in 2012 and the summary of outputs integrated into the analysis of the position.
- Various models reviewed. Differences between the military and civil use of a COP were considered.
- The application of value from military and overseas civil context was applied to the UK, unique approach to multi agency emergency management
- A model proposed for the inclusion of a COP in the next generation of NRE was developed
- The risks of applying this outline model were considered

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Context - Project Task

"Provide de-risking advice on the feasibility of achieving a Common Operational Picture in the UK. Review the aims of the COP and improve understanding on how feasible it is against the current environment. Identify risks and gaps, and provide advice on how they can be addressed."

Dstl

In this paper the term 'Common Operating Picture' has been used to substitute the term 'Operational' used in the project task above.
The term 'Operational' has a number of interpretations and the multi agency agreed UK terminology is 'Common Operating Picture' (UK Civil Protection Lexicon, version 2.01 Cabinet Office 20012).

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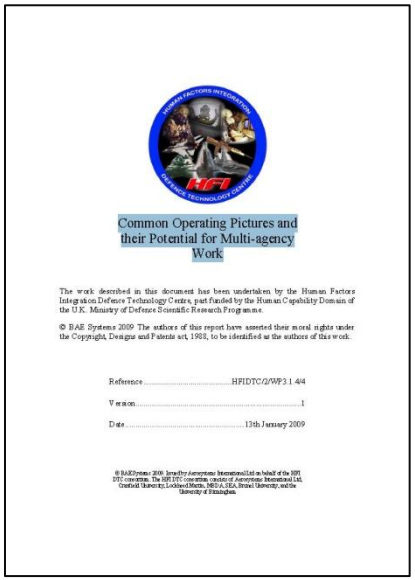
Context – Existing Information

‘Common Operating Pictures and their Potential for Multi-agency Work’

Richard McMaster Chris Baber (BAe Systems 2009)



Common Operating Pictures and their Potential for Multi-agency Work

The work described in this document has been undertaken by the Human Factors Integration Defence Technology Centre, part funded by the Human Capability Domain of the U.K. Ministry of Defence Scientific Research Programme.

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Reference.....HFIDTC/2/WP3.1.4/4

Version.....1

Date.....13th January 2009

HFIDTC/2/WP3.1.4/4

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Context

The NRE is intended for

> *"…all Category 1 and 2 Responders, Government Departments and Agencies and other key organisations in the UK resilience community to share knowledge, plan responses to emergency situations and manage incidents as they happen."*
>
> National Resilience Extranet Capabilities (Ultra 2010)

Consider why this has not been achieved particularly the element *of "…manage incidents as they happen."*

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Context

"…manage incidents as they happen."

- NRE does not have an ability to directly support multi agency information sharing during an emergency <u>at the point of operational need</u>

- The NRE 'Collaborate' functions are valuable and support both 'normality' cooperation and communication but are not adequate alone for emergency decision making
  - Information security obstacles
  - All text based information
  - Portability of capability
  - Complex information structure

'Atlas Ops'
'NRE Maps'

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Context – Situational Awareness

Affected by Information available:

- Accuracy of Information
  - Process of corroboration
  - Known risk 'Working Assumption'
- Relevance of information
- Timeliness of Information (up to date?)
  - Prepared Contingency Plan
  - Real Time, verified and agreed
- Comprehension of information
  - Complex text based detail
  - Easy to assimilate 'Action Lists'
  - Text or graphics
- Ease of access to information
  - Obscured by complex information structures (Libraries)
  - Obscured by information which is not relevant
  - Complex security protocols

None achieved by NRE 'Collaborate' alone.

Limited improvement by provision of NRE Maps alone

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Context - What is a Common Operating Picture?

A Common Operating Picture is information which serves to inform the 'Situation Awareness' of decision makers and responders in a manner that improves information access and understanding

- Accurate Information
- Relevant Information
- Up to Date Information
- Comprehensible

Multi agency information
Agreed, corroborated or risk agreed
Up to date
Relating to the specific emergency

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Context - What is a Common Operating Picture?

NOT the presentation of all agency GIS information

- Volume of information masks important information
- Most single agency information is irrelevant to other agencies (e.g. hospital bed capacity)
- Danger of inaccurate information or conflicting information

- Military distinction between COP and CTP
  - Common Operating Picture
    - Information which changes slowly
  - Common Tactical Picture
    - Information which changes quickly

The NRE Common Operating Picture is:

Mapping based information (COP)

Text based information (CRIP)

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Strategic Aim

Next Generation NRE: Strategic Aim

"Embed a universal, resilient, secure, information platform to support Strategic and Tactical multi agency decision making, and Operational activity, at local, regional and national level before, during and following any identified emergency or crisis situation for UK resilience"

This statement of Aim is a synthesis of available documentation and is supported by a separate Strategy and Policy Paper

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Strategic Aim

NG NRE – Common Operating Picture: Strategic Aim

"Provide a graphical (mapping) and text based Common Operating Picture capability as a core element of the NRE which offers a specified sub set of NRE information relevant to a single emergency and which is time limited by that emergency action.

The Common Operating Picture information must be available in at least 'read only' configuration, in an intuitive easy to access format and immediately viewable by multi agency responders at Operational level."

Detail in the full COP paper

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Feasibility – Obstacles & Limitations

OBSTACLE/LIMITATION	SOLUTION
COP requires adoption of NRE which is presently sporadic	Essential that the NRE is adopted comprehensively in UK • Including the COP as part of NRE will promote adoption • Improved NRE will encourage adoption • Seek agreement that all Gov. Depts. will use NRE/COP to make COP indispensable in emergency government communication • NRE/COP doctrine as part of 'Emergency Response and Recovery' e.g. 'CRIP'

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Feasibility – Obstacles & Limitations

OBSTACLE/LIMITATION	SOLUTION
COP requires multi agency agreed and verified information	Process for 'publishing' of COP information which includes a single point of control. Users have 'read only' access
Agencies have different information systems	Implement COP with a manual authoring capability as a basic minimum. Most information can be transmitted as either text or formatted graphic irrespective of the originating information system and can be incorporated into a COP without difficulty
COP requires 'standardisation' of the way in which information is presented	The 'Lexicon' and 'Symbology' published by the CCS supplemented by guidance on COP doctrine and process
LRF existing systems may be comparable or better	Encourage more lateral understanding of cross border emergencies

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Feasibility – Obstacles & Limitations

OBSTACLE/LIMITATION	SOLUTION
Existing, full function, NRE platform is too complex in functionality for the COP • Complexity may prevent ready access in an emergency to their essential COP information • Multiplicity of information may mask essential COP information • Security protocol for a full 'Restricted' system prevents access to essential COP information by Bronze and emergency responders • Allowing all users direct access to the COP with an ability to update is high risk – COP information must be agreed and verified by a multi agency group	COP information must be controlled by a multi agency single point focus Users need 'Read Only' access COP information must be presented in a manner which maximises access and comprehension

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Feasibility - Descriptors

- COP information must be controlled by a multi agency single point focus
- Users need ‘Read Only’ access
- COP information must be presented in a manner which maximises
  - Access
    - Minimal delay in addressing security protocol
    - Flexibility in use of devices (“any device anywhere”)
    - Internet based (mobile telephony or ‘Airwave’)
  - Comprehension
    - COP presented in format that is easy to navigate
    - COP presented in graphical and text form that is readily comprehended and understood
    - Uncluttered by other information

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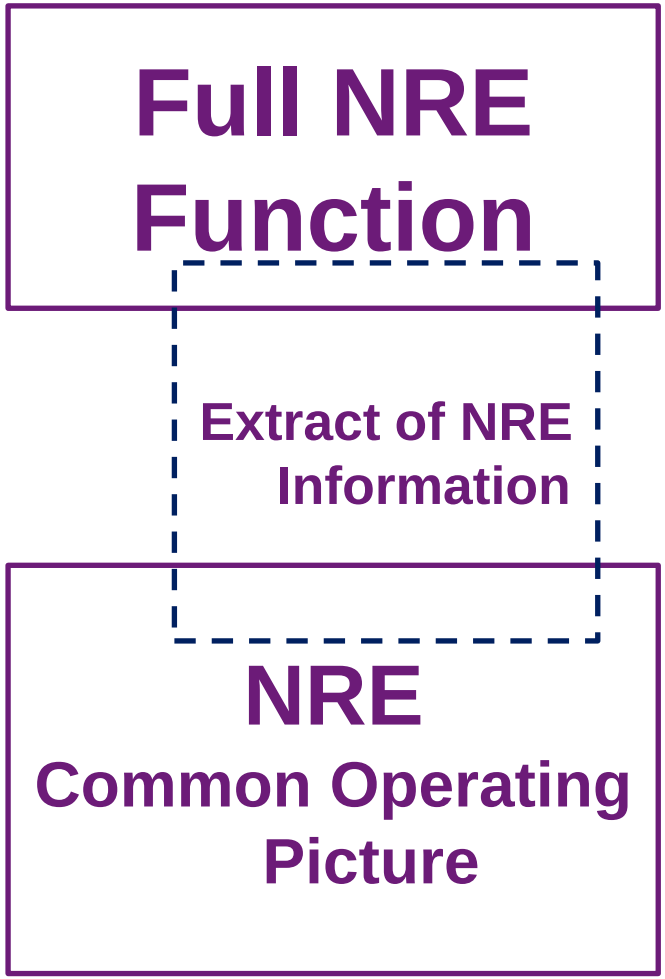
Feasibility - Groups of Users

Emergency Planning Staff

Incident Gold and Silver Commanders and Command Support (and Government)

Bronze Command, Team Leaders and other multi agency responders



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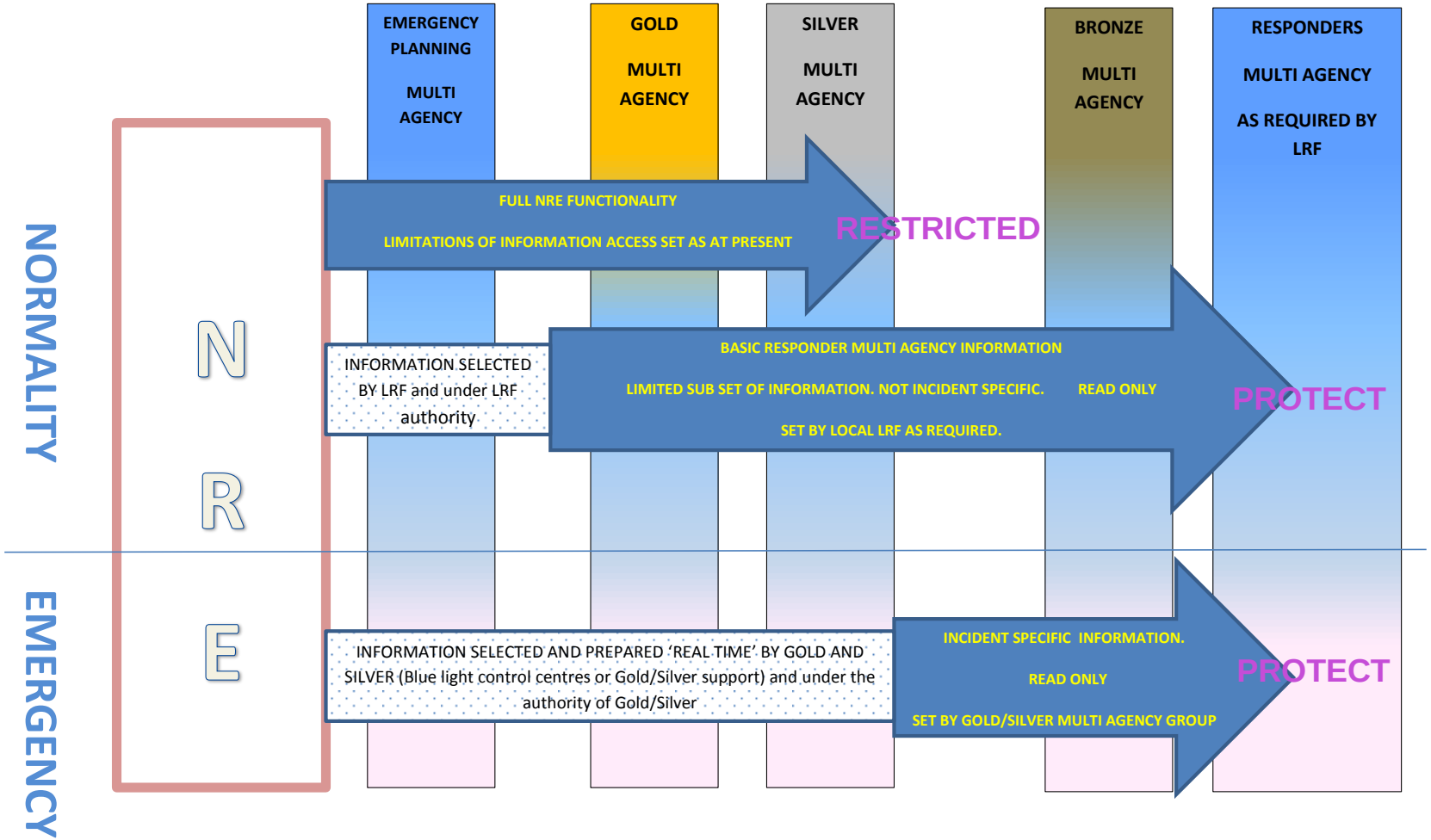
EMERGENCY PLANNING
MULTI AGENCY
GOLD
MULTI AGENCY
SILVER
MULTI AGENCY
BRONZE
MULTI AGENCY
RESPONDERS
MULTI AGENCY
AS REQUIRED BY LRF
NORMALITY
N
R
E
EMERGENCY
FULL NRE FUNCTIONALITY
LIMITATIONS OF INFORMATION ACCESS SET AS AT PRESENT
RESTRICTED
INFORMATION SELECTED BY LRF and under LRF authority
BASIC RESPONDER MULTI AGENCY INFORMATION
LIMITED SUB SET OF INFORMATION. NOT INCIDENT SPECIFIC. READ ONLY
SET BY LOCAL LRF AS REQUIRED.
PROTECT
INFORMATION SELECTED AND PREPARED 'REAL TIME' BY GOLD AND SILVER (Blue light control centres or Gold/Silver support) and under the authority of Gold/Silver
INCIDENT SPECIFIC INFORMATION.
READ ONLY
SET BY GOLD/SILVER MULTI AGENCY GROUP
PROTECT

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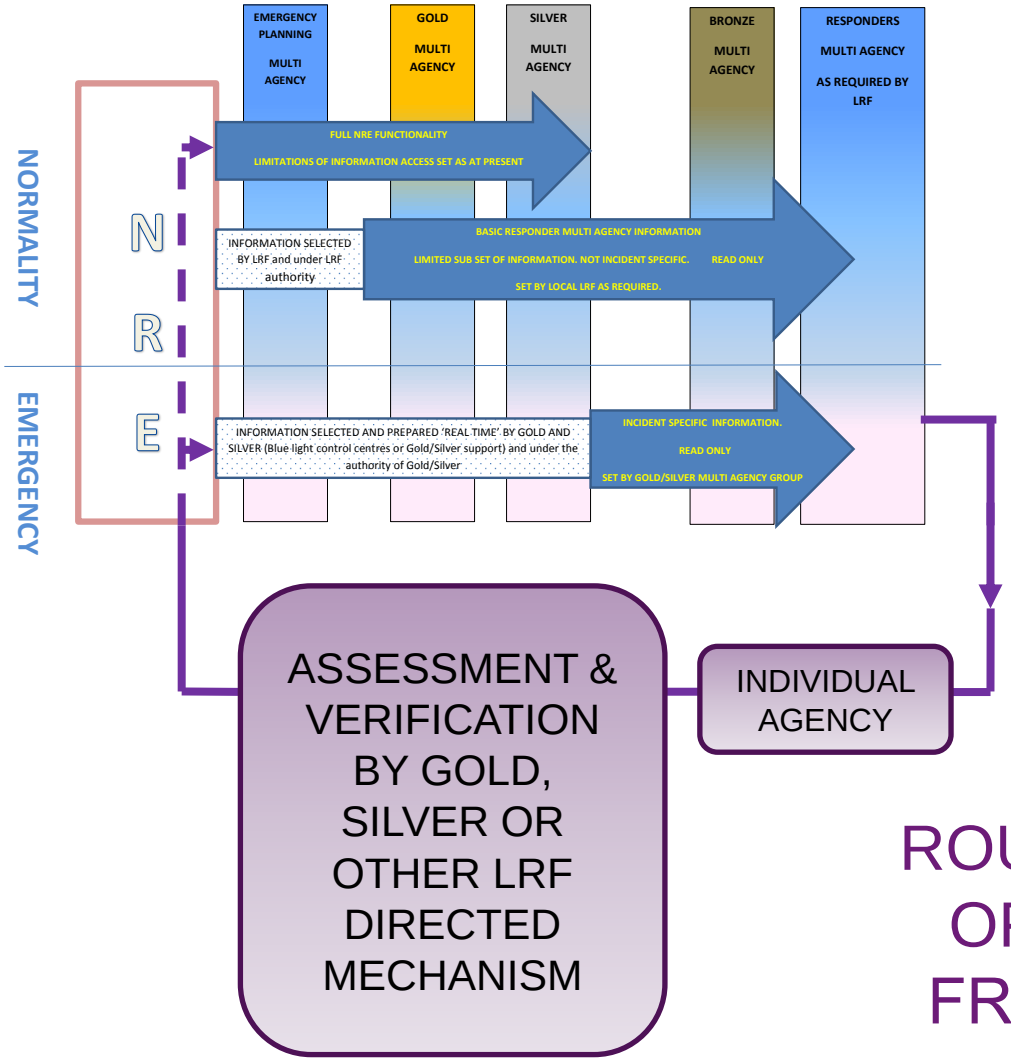

ROUTE FOR UPDATE OF INFORMATION FROM 'FRONT END USERS'

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Feasibility – Standardisation of Information

- Standardised format
  - Symbology and Lexicon
- Horizontal integration inside LRF
  - Process, presentation and methodology can be determined locally by the LRF
- Vertical integration beyond the LRF
  - Requires national doctrine and …
  - Adherence to common standards by all participants

Without compliance to a single agreed doctrine and process model the NRE COP will fail to achieve critical application

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Feasibility – Common Tactical Picture

- Some agencies (notably the voluntary groups) do not have a tactical response support system - real time location of specific assets.
  - Value in providing a such tactical tool, at a fairly basic level, as an optional element of NRE. presented separately from the multi agency Common Operating Picture.
- The added value lies in two circumstances:
  - For use by single agencies who do not have access to a resource management/deployment capability (notably small or voluntary agencies)
  - Where joint agency teams are deployed (e.g. during flooding) where multi agencies require to track the location and status of the resource.

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Feasibility

Full Function NRE

As presently presented
Plus COP capability
'Restricted'

Change from existing NRE limited to becoming more intuitive

Limited Function NRE

Read Only
Only information relevant to specific emergency and relevant to each 'level' of user presented
Only information at 'Protect'

Read Only allows more information to be presented at 'Protect'
Time limited risk

Ensures key information is available at point of need

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Feasibility

- The detail of technical feasibility is included in the full paper on this subject
  - A sample solution is included but the methodologies are varied
  - Technical feasibility is relatively straightforward and technologies exist in the market
  - Commercial Off the Shelf products
  - Ease of integration with existing and possible NG NRE technology
- Three models:
  1. Manual creation of COP
  2. COP ‘Pull’ from agencies
  3. Agency ‘Push’ to COP

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Feasibility - Three models

1. Manual creation of COP
   - Tools exist – short development time
   - Ease of implementation
   - Provides most useable functionality (80/20)
2. COP ‘Pull’ from agencies
   - Time to develop protocols but basic text, mapping, graphics are not complex to transfer – even using a manual system e.g. email
   - Build in main capability. Bespoke additions develop locally
3. Agency ‘Push’ to COP
   - Multiple systems requires substantial work to integrate
   - Cost/benefit not clear
   - Option to allow local arrangements with NRE supplier
   - Integrates with CTP capability

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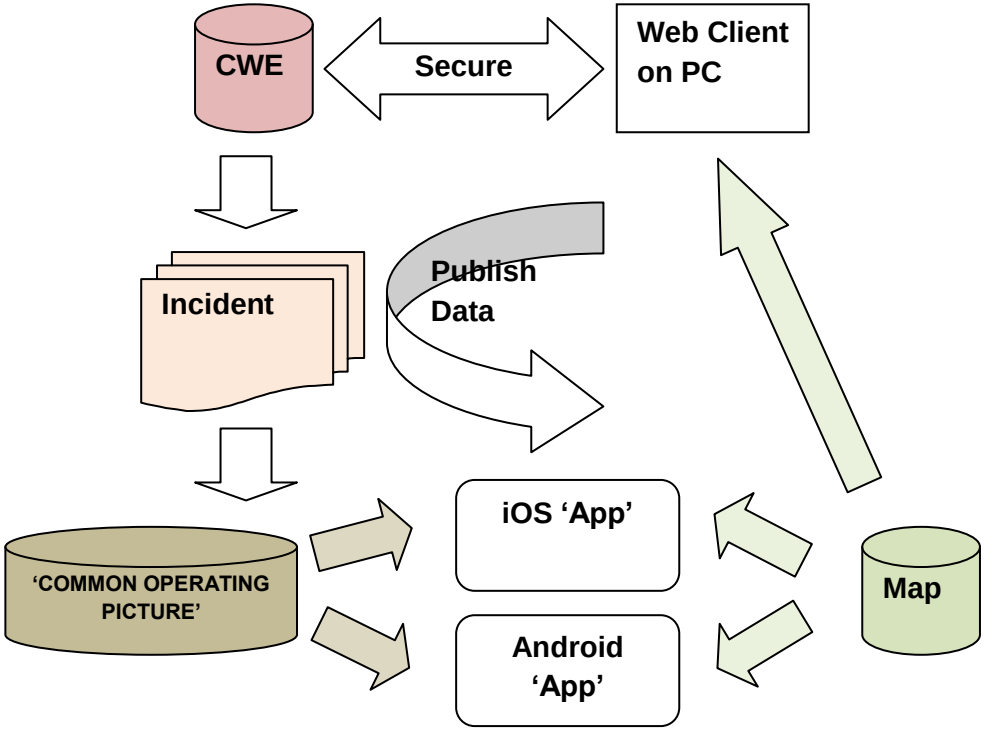
Feasibility – Technical Architecture



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Feasibility – Key Issue

- Clear specification of the User Need

- Clear agreement of single doctrine and process
  - Universal adoption of doctrine and process
    - By LRFs
    - By national government departments
    - By national agencies
    - By devolved administrations

NO SINGLE DOCTRINE OR PROCESS

NO ADEQUATE COMMON OPERATING PICTURE

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Strategic Risks – Primary Strategic Risk (1)

- Post emergency reports which highlight repeatedly the consequences of poor emergency services integration, inaccurate exchange or consolidation of information or poor decisions based on equally poor 'situation awareness' and 'interoperability'. The first NRE sought to address that Information challenge – and failed

For example, the last major multi agency exercise to test flood preparedness in England and Wales (Exercise Watermark 2011) contained three recommendations of relevance:

- **Situation reporting (sitrep) and information requirements**
- **Better use of technology for information sharing and reporting**
- **IT infrastructure**
- **The National Resilience Extranet (NRE)**

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Strategic Risks – Primary Strategic Risk (2)

- This iteration of the NRE, and in particular that element of the NRE used during the multi-agency emergency response, the Common Operating Picture, cannot be allowed to be implemented sporadically, lacking in common standards of information provision or doctrine. It would be a considerable national strategic risk if government departments, individual agencies or LRF areas are allowed to sit outside the NRE and Common Operating Picture capability or not to implement the national doctrine provisions or if NRE national doctrine is not developed.

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Strategic Risks – Primary Strategic Risk (3)

THE HUMAN RIGHTS RISK ARGUMENT

- Poor information management/provision firmly established as a cause of life being at risk
- Government sought to address that risk by providing NRE/COP
- NRE/COP failed in aim because not taken up and varied in application
- Lack of take up caused by system not being mandatory
- Human Rights Act 2000 – Positive public duty to avoid life being lost
- If life is lost because of poor Situation Awareness, and NRE (COP) not used, and not used because use is not mandated
- Vulnerable to challenge under Human Rights Act that life was lost because NRE (COP) not implemented and therefore government may be in breach of duty under the Act

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Strategic Risks

The following strategic risks are identified in the Report

- Information Quality
- Information Access
- Information Security
- Information Integration
- Information Confusion
- Confidence and Continuity
- System Overload
- Technical Surprise and Platform Support

Detail of risks are identified separately in the report but have been incorporated into the wider presentation

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Assessment: COP Capabilities

- A Common Operating Picture (COP) is an extremely valuable tool for good situation awareness and high-quality decision making
- The absence of a COP therefore risks impairing effective and efficient decision making, which could in some circumstances place lives at risk
- The technical capability to deliver a Common Operating Picture is readily available: several COP capabilities are available as commercial off the shelf (COTS) from UK suppliers, at reasonable costs.
- Most COP capabilities are scalable for application to contingencies at local, regional or national levels.

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Assessment:
Candidate Implementation of COP Functionality (1)

- COP functionality should be common across the NG-NRE, and available to all NG-NRE users.
- The COP should be continuously updated from a remote multi-agency location (Gold or Silver command support?).
- Information should be 'time stamped' so that the COP remains the 'best information available'.
- The COP should be at PROTECT level and Read Only

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Assessment: Candidate Implementation of COP Functionality (2)

- The COP should present only information relevant to the incident to which the COP relates.
- The COP would benefit from a UK-wide process and doctrine (inc. the published Symbology and Lexicon).
- The COP functionality should be able to manage and present COP data from multiple emergencies simultaneously, though presenting to any one user only one COP at a time.

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Conclusions

- NG-NRE would benefit from the inclusion of a core (non-optional) COP functionality
- The COP would provide considerable benefit to UK resilience
- Such a COP should present information, in an accessible, readily-assimilated form with functionality that is capable of use by all of the Resilience Community, even staff unfamiliar with emergency management or the detailed functionality of the wider NRE system.
- The capability gaps being addressed by the current JESIP programme would be partly mitigated by the presence of an adequate COP functionality

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Recommendations

- That, in creating the requirement for the NG-NRE, the Cabinet Office considers the benefits and costs of including a scalable COP functionality as a core component

- That, further, the Cabinet Office considers sponsoring the creation of a national doctrine and process for the use of the NG-NRE COP functionality as an element of ‘Emergency Response and Recovery’ Guidance.

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