

Scottish Wide Area Network (SWAN) update & Partnership Connectivity

Scotland NHS-HE Forum

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Partnership Connectivity

Public Sector Roaming - Why?

- Supporting a mobile workforce
- Support collaboration between organisations within a particular sector
- Support high level public sector strategies e.g. Health and Social Care integration

eduroam

- eduroam solved many of these challenges for the Higher Education sector years ago.
- RADIUS-based infrastructure service to enable wireless network access at participating institutions.
- RADIUS hierarchy used to forward user credentials to the user's home institution, where they can be verified and validated.

eduroam in UK

- Approaching 1 million unique devices per month.
- ~90 million successful authentications per month.

eduroam globally

- One billion authentications
- 74 territories
- 3rd most commonly encountered SSID

eduroam

A database of credentials



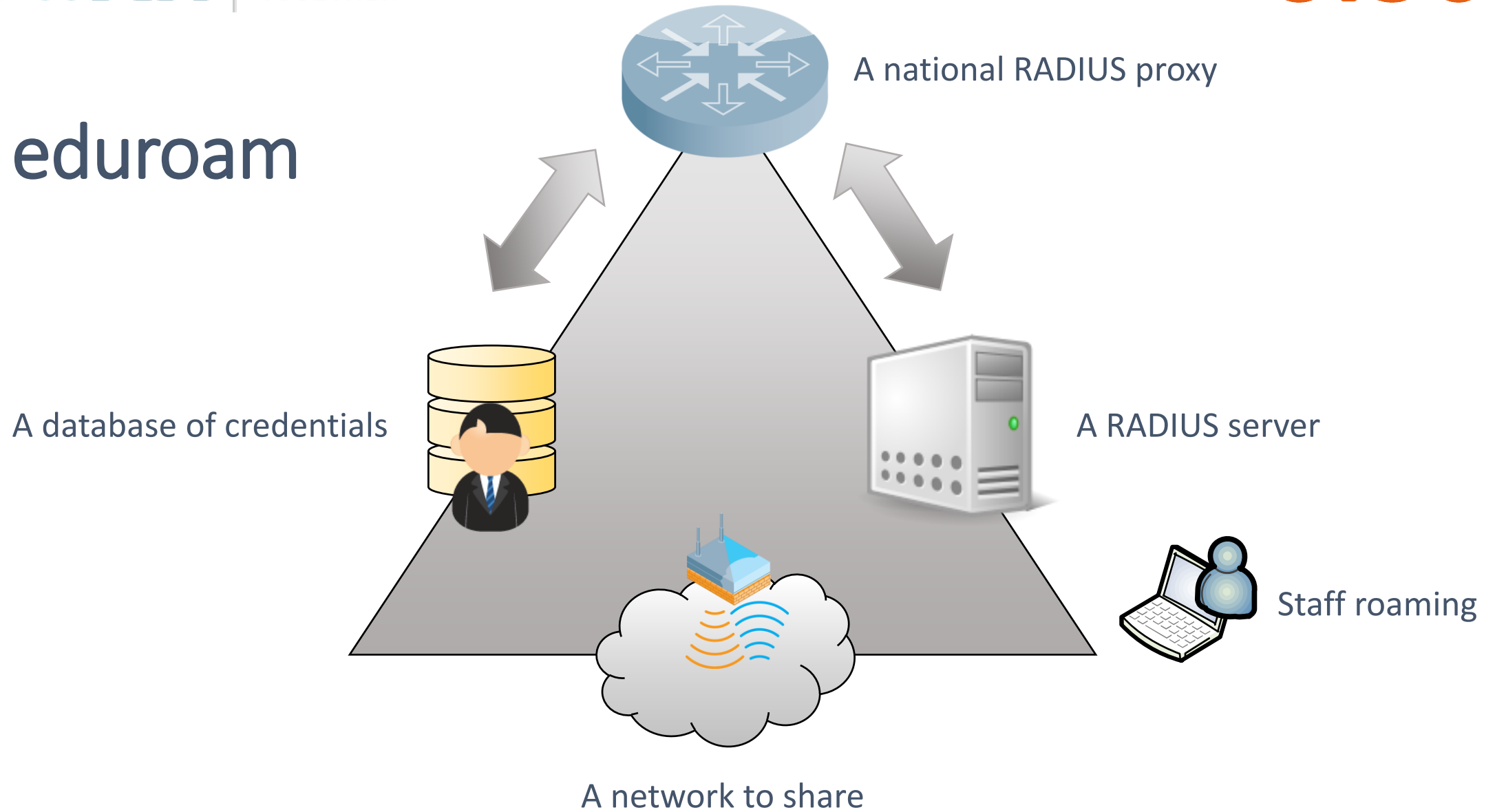
A RADIUS server



A network to share



eduroam

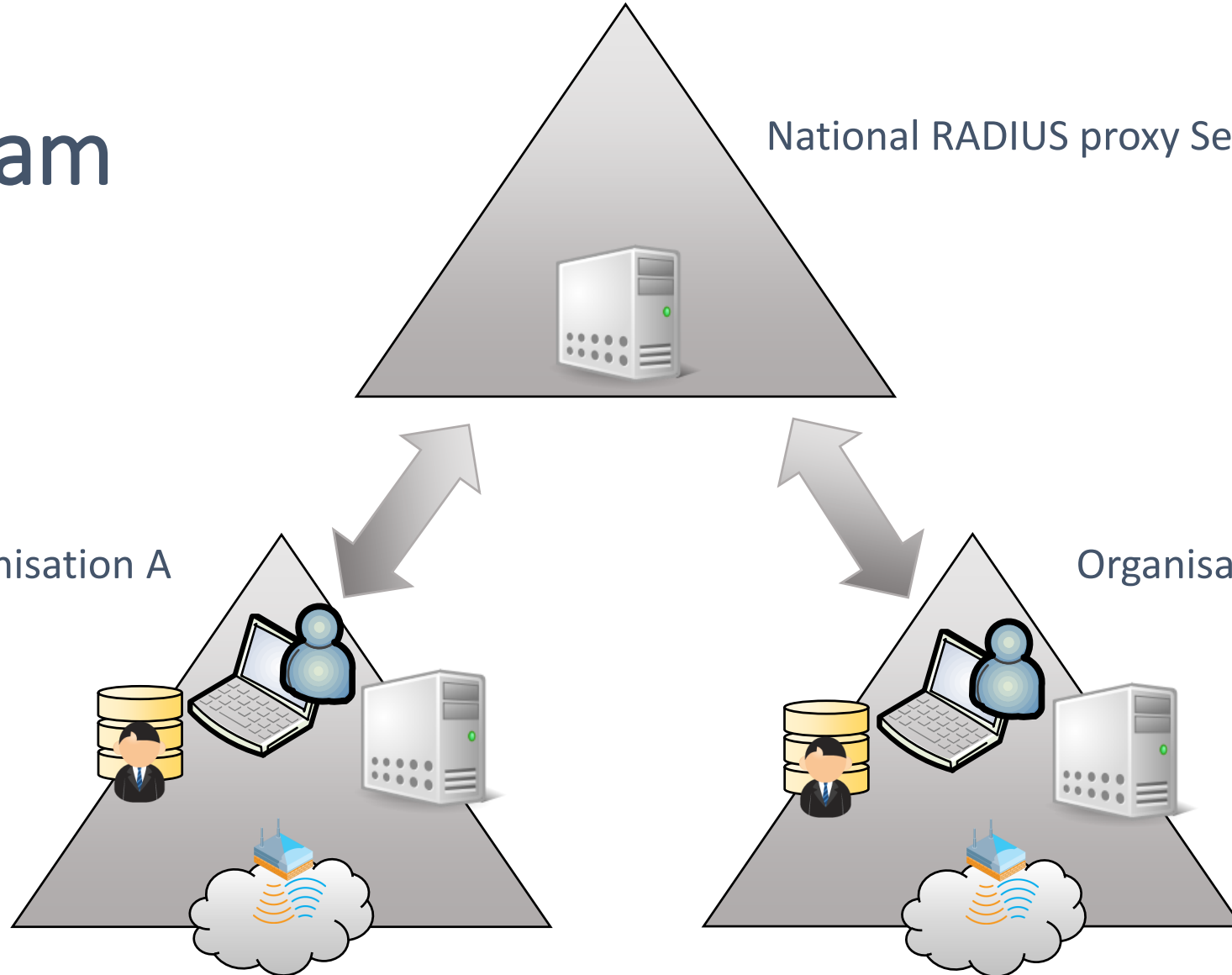


eduroam

National RADIUS proxy Service

Organisation A

Organisation B





Europe RADIUS proxy Service



National RADIUS proxy Service



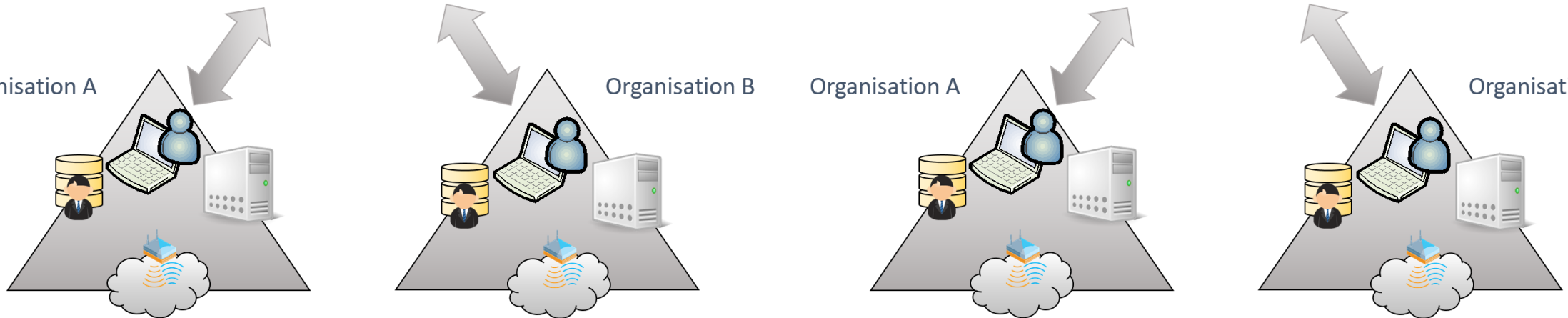
National RADIUS proxy Service

Organisation A

Organisation B

Organisation A

Organisation B



Benefits

- Reuse existing WLAN assets;
- ‘Zero touch’ user-friendly experience;
- Real-time “member in good standing” check (backed by home organisation assistance);
- Reduce the need for customer-facing visitor support;
- Reduce the need for temporary account processes, reducing attack surface;
- Reduce costs associated with SIM-based data provision for roaming staff;
- Increased off-site connectivity and hot-desking opportunities;
- Reduce the overheads of meetings, conferences and events;
- Exert real-time control over staff use of off-site connectivity;
- Staff use connectivity implemented to industry best practices.

Enter Govroam...

- Facilitate wireless roaming in public sector buildings
- Based on the eduroam model
- Provide efficiencies for public sector organisations
 - No additional connectivity required
 - Reduce need to issue temporary credentials
 - Save costs of procuring additional wireless networks
 - Share spaces/Estate rationalisation
 - Facilitate better cross-sector collaboration

Govroam

- JISC have deployed the national level infrastructure required to launch Govroam
 - 3 x Radius Servers (RedHat Linux/FreeRADIUS - load balanced) commissioned on 8th September, 2016 *
 - Technical Boarding (support and documentation)
 - Monitoring
 - Troubleshooting
 - Facilitate Community Governance
 - Interface with international initiatives

*Current solution is temporary for early adopters. A more scalable, permanent infrastructure will be deployed by Q2 2017.

Govroam

- Organisations identified to participate in the pilot
 - Royal Borough of Kensington and Chelsea Council
 - Royal Brompton Hospital
 - Kent PSN
 - YH PSN
 - East Kent Hospitals University NHS Foundation Trust
 - Medway NHS Foundation Trust
 - NHS Greater Glasgow and Clyde Health Board
 - Inverclyde Council

Govroam

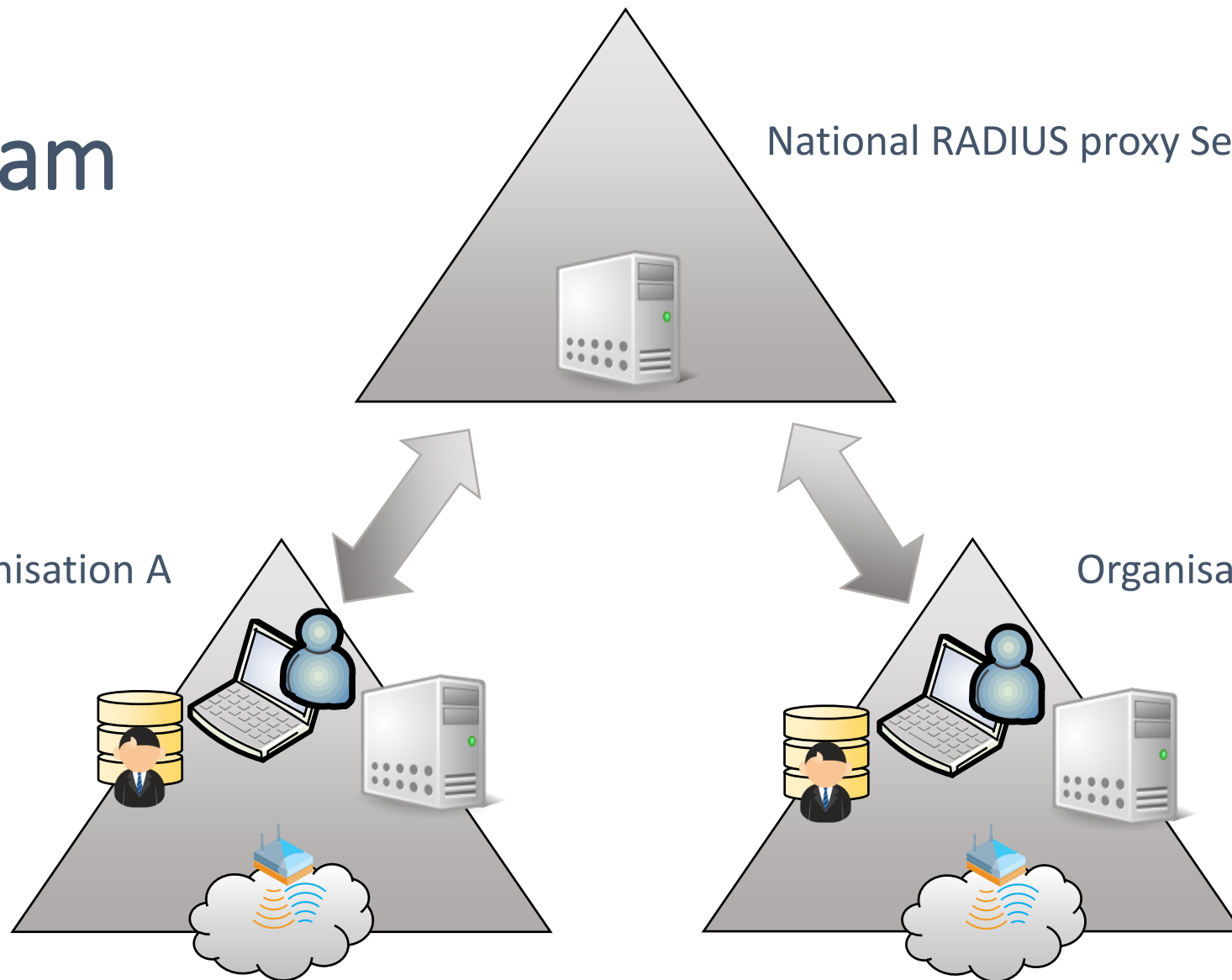
- First “live” roaming event took place on 22nd September 2016 during a “demonstrator deployment” between Royal Borough of Kensington and Chelsea Council and the Royal Brompton Hospital

Govroam

National RADIUS proxy Service

Organisation A

Organisation B



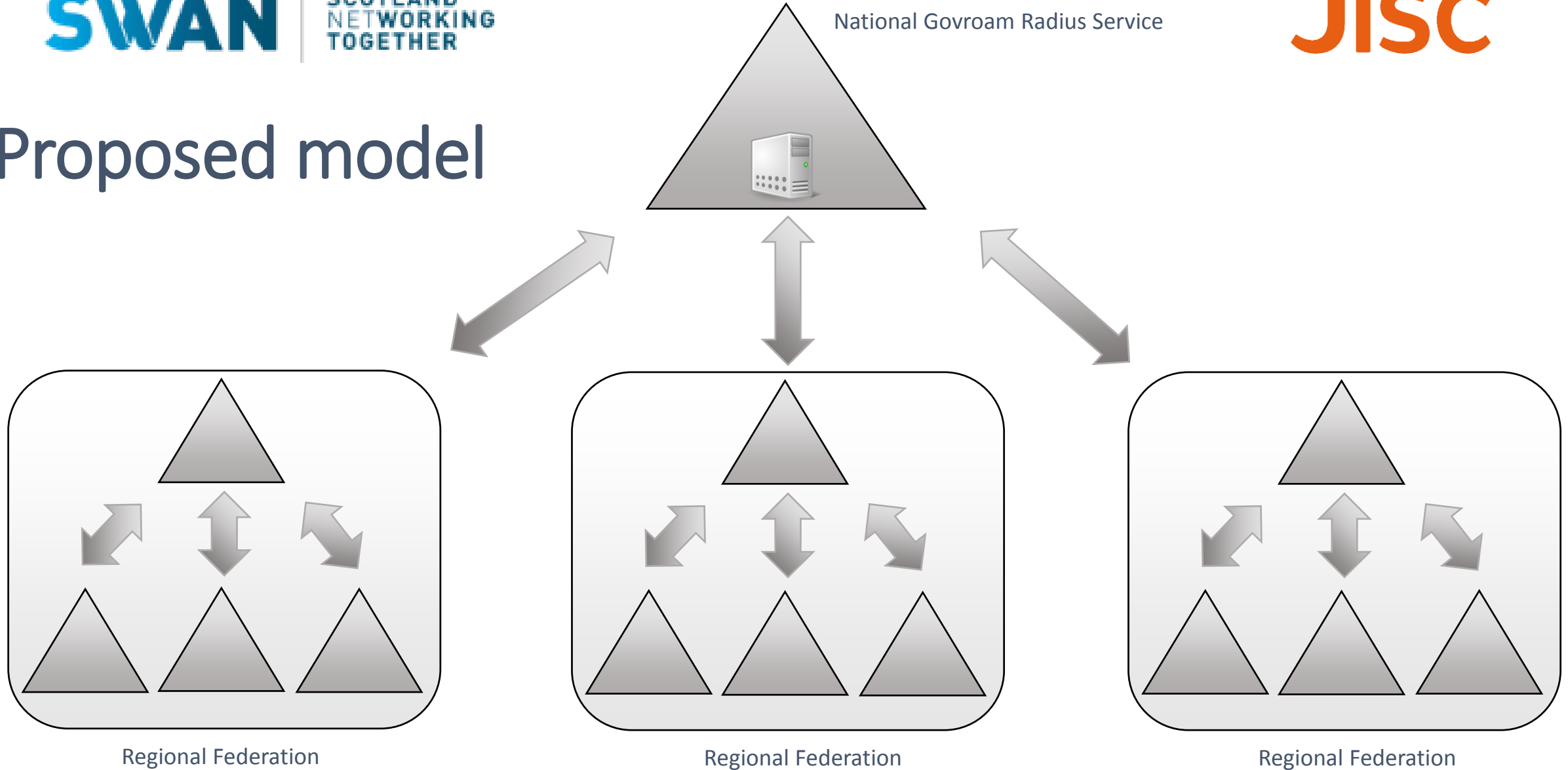
Proposed model

- Deploy multiple tiers of **RADIUS aggregation**.

Example: Participant groups that expect the majority of roaming to be bounded within their own domain might design a RADIUS infrastructure that retains roaming authentication traffic in their own control as a **regional federation**.

National Govroam Radius Service

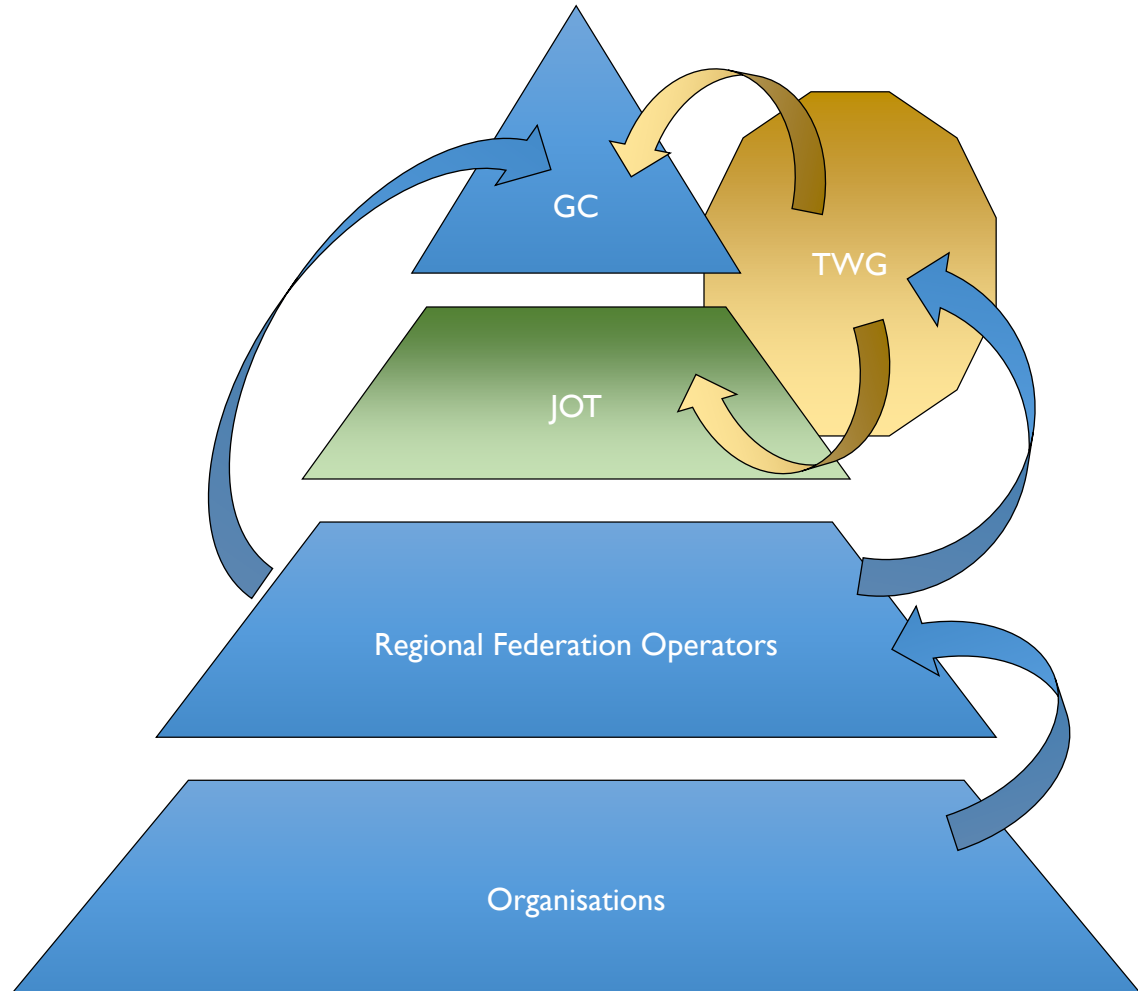
Proposed model



Common SSID & roaming LAN definition

Provision

- Common SSID
- Minimum access e.g. Email, Web, VPN
- Further access at the discretion of individual organisation e.g. NHS organisations may be required to provide access to clinical systems for partner local authority staff to support Health and Social Care integration
- As with eduroam, Govroam is based on a “fabric of trust”. A co-operation agreement not just technology
- Fundamental Principles
 - Universal Access
 - Common Standard
 - Mutual co-operation to resolve issues

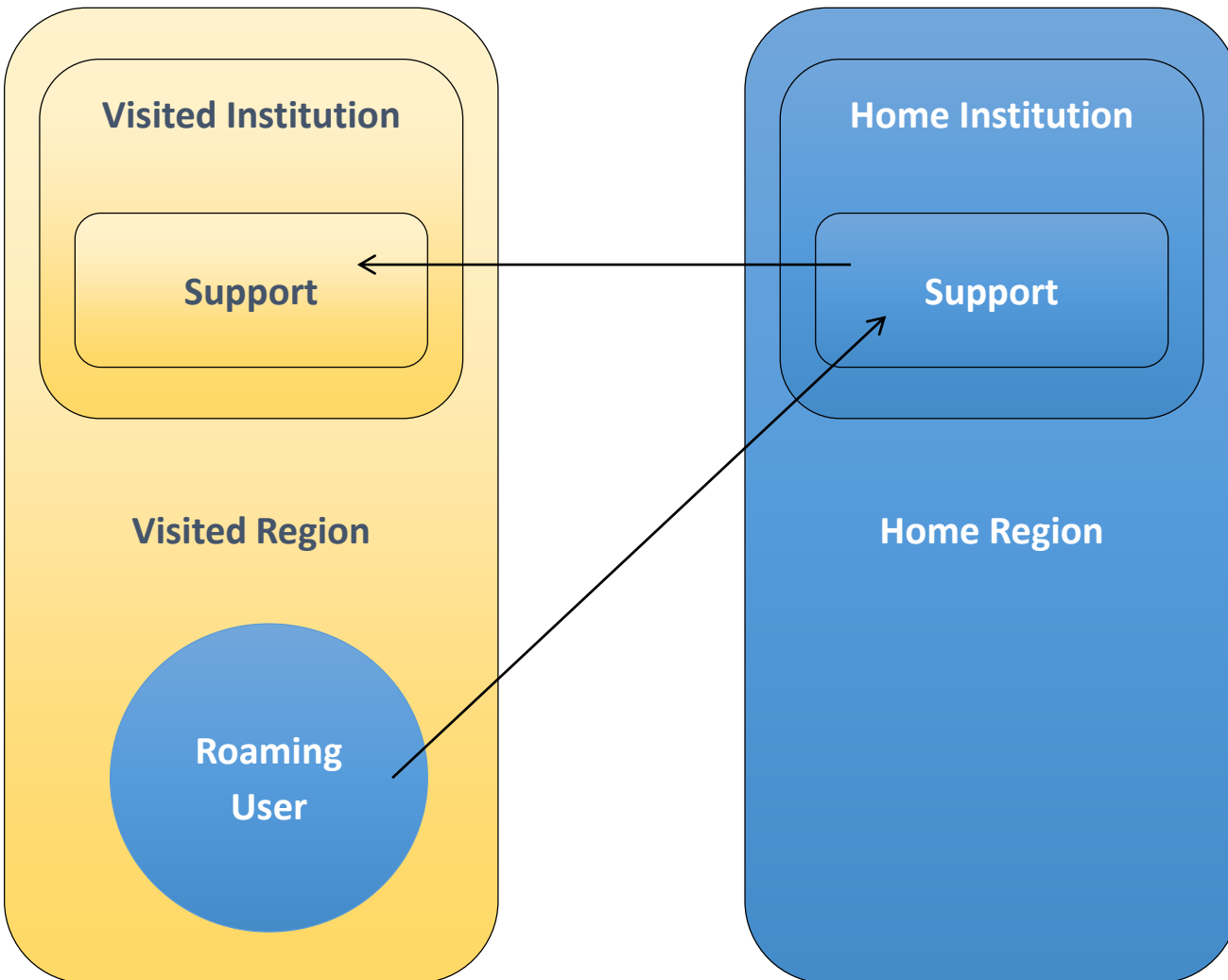


Organisation Model

- » A Governance Committee
- » ... advised by a Technical Working Group...
- » ... which manages the Jisc Operating Team...
- » ... for the benefit of regional federations and their member organisations

Support Model

- » The point where the credentials are authenticated holds the answer to the majority of user support queries
- » ... so, users must speak to their Home Organisation in the first instance.
- » Their support team will liaise with the visited site if required.



Cost

- Commercial model still being worked on
- Requirement to balance covering costs with supporting adoption

Govroam Globally

- There are already Govroam services in Belgium, The Netherlands, Austria and Slovenia.
- The Dutch and Belgium initiatives interoperate allowing users in participating organisations to roam between the two countries.

Govroam and eduroam

- Complete separation - not all Govroam participants can integrate with academia *
- Offer both SSIDs at venues where communities mix, by local agreement e.g. eduroam within NHS organisations

* Maintain technical compatibility to keep option of future integration open...

| | | | | | |
|-----|---|-----|--|------|---|
| 1. | Aberdeen Royal Infirmary | 41. | Kingsway Care Centre, Dundee | 82. | Southern General Hospital, Glasgow |
| 2. | Aberfeldy Community Hospital, Perthshire | 42. | Lambeth Hospital, London | 83. | Southmead Hospital |
| 3. | Abingdon Community Hospital, Oxon | 43. | Leeds Community Healthcare NHS Trust sites | 84. | St Bartholomew's Hospital |
| 4. | Arbroath Infirmary | 44. | Leeds General Infirmary | 85. | St Cadoc's Hospital, Caerleon |
| 5. | Barry Community Hospital | 45. | Leicester General Hospital | 86. | St Charles' Hospital, London |
| 6. | Bethlem Royal Hospital, Beckenham | 46. | Leicester Royal Infirmary | 87. | St David's Hospital, Cardiff |
| 7. | Bicester Community Hospital, Oxon | 47. | Little Cairnie Hospital, Arbroath | 88. | St George's Hospital, London |
| 8. | Blairgowrie Community Hospital, Perthshire | 48. | Manchester Royal Eye Hospital | 89. | St James University Hospital, Leeds |
| 9. | Bradford Royal Hospital | 49. | Manchester Royal Infirmary | 90. | St John's Hospital, Livingstone |
| 10. | Bradford District Care NHS Foundation Trust sites | 50. | Mansion House Unit, Glasgow | 91. | St Luke's Hospital, Bradford |
| 11. | Brechin Infirmary | 51. | Maudsley Hospital, London | 92. | St Margaret's Hospital, Auchterarder |
| 12. | Bristol Eye Hospital | 52. | Montrose Royal Infirmary | 93. | St Mary's Hospital, Manchester |
| 13. | Bristol Royal Hospital for Children | 53. | Mount Gould Hospital, Plymouth | 94. | St Mary's Hospital, Paddington |
| 14. | Bristol Royal Infirmary | 54. | Morrison Hospital, Swansea | 95. | St Michael's Hospital, Bristol |
| 15. | Calderdale Royal Hospital | 55. | Murray Royal Hospital, Perth | 96. | St Thomas' Hospital |
| 16. | Cardiff Royal Infirmary West Wing | 56. | Neath Port Talbot Hospital, Port Talbot | 97. | Stobhill Hospital, Glasgow |
| 17. | Chapel Allerton Hospital, Leeds | 57. | Nevill Hall Hospital, Abergavenny | 98. | Stracathro Hospital, Brechin |
| 18. | Charing Cross Hospital | 58. | Ninewells Hospital, Dundee | 99. | Strathmartine Hospital, Dundee |
| 19. | Charles Clifford Dental Hospital, Sheffield | 59. | Norfolk and Norwich University Hospital | 100. | Thame Community Hospital, Oxon |
| 20. | Chelsea and Westminster Hospital | 60. | Northern General Hospital, Sheffield | 101. | The Royal London Hospital |
| 21. | Churchill Hospital, Oxford | 61. | Perth Royal Infirmary | 102. | University Dental Hospital, Cardiff |
| 22. | Creiff Community Hospital, Perthshire | 62. | Pinderfields Hospital, Wakefield | 103. | University Hospital Llandough, Penarth |
| 23. | Derriford Hospital, Plymouth | 63. | Pontefract Hospital | 104. | University Hospital of North Staffordshire, Stoke-on-Trent (teaching block only) |
| 24. | Dewsbury and District Hospital | 64. | Pitlochry Community Hospital | 105. | University Hospital of Wales campus, Cardiff |
| 25. | Didcot Community Hospital | 65. | Princess of Wales Hospital, Bridgend | 106. | University of Bristol Dental Hospital |
| 26. | Dr Gray's Hospital, Elgin | 66. | Queen Charlotte's Hospital, London | 107. | Velindre Cancer Centre, Cardiff |
| 27. | Dundee Dental Hospital | 67. | Raigmore Hospital, Inverness | 108. | Victoria Hospital, Kirkcaldy |
| 28. | Gartnavel General Hospital & Beatson West of Scotland Cancer Centre, Glasgow | 68. | Rookwood Hospital, Llandaff, Cardiff | 109. | Victoria Infirmary, Glasgow |
| 29. | Gartnavel Royal Hospital, Glasgow | 69. | Royal Cornwall Hospital | 110. | Wallingford Community Hospital, Oxon |
| 30. | Glasgow Dental Hospital | 70. | Royal Gwent Hospital, Newport | 111. | Wantage Community Hospital, Oxon |
| 31. | Glasgow Royal Infirmary | 71. | Royal Hallamshire Hospital,, Sheffield | 112. | Warneford Hospital, Oxon |
| 32. | Glenfield Hospital, Leicester | 72. | Royal Hospital for Sick Children, Edinburgh | 113. | Western Eye Hospital, London |
| 33. | Great Western Hospital, Swindon | 73. | Royal Hospital for Sick Children, Glasgow | 114. | Western General, Edinburgh |
| 34. | Guy's Hospital | 74. | Royal Infirmary of Edinburgh | 115. | Western Infirmary General, Glasgow |
| 35. | Hammersmith Hospital | 75. | Royal London Hospital | 116. | Weston Park Hospital, Sheffield |
| 36. | Harrogate District Hospital | 76. | Royal Manchester Children's Hospital | 117. | Whitchurch Hospital, Cardiff |
| 37. | Horton General Hospital, Oxon | 77. | Royal Sussex County Hospital | 118. | Witney Community Hospital, Oxon |
| 38. | Huddersfield Royal Infirmary | 78. | Royal Victoria Hospital, Dundee | 119. | Wykeham Park Day Hospital, Oxon |
| 39. | John Radcliffe Hospital, Oxford | 79. | Scunthorpe General Hospital | 120. | Wythenshawe Hospital, South Manchester |
| 40. | King's College Hospital | 80. | Sheffield Children's Hospital (library only) | 121. | Weston General Hospital, Somerset |
| | | 81. | Singleton Hospital, Swansea | | |

eduroam at NHS Sites

- Many NHS sites in Scotland have eduroam - generally implemented by a partner University
- Many different implementations often relying on additional infrastructure and relying on bespoke configuration within the NHS Board and the partner University
- NHS sites with no partner University generally do not have eduroam
- Opportunity to provide eduroam in all NHS sites using a standard configuration based on the “Visited Institution” model as implemented within NHS Lothian
- SSID can be added when Govroam is implemented



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