LIGO IdM Update

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What's New?
Yes, yes.
But what's new since the detection?
LIGO/Virgo Collaboration News

● Third black hole inspiral detection
  ○ 49 solar masses (previous were 62 and 21)
  ○ Confirms new population of black holes

● Second observing run (O2) ended August 25, 2017
  ○ Began November 30, 2016
  ○ Upgraded Virgo (French/Italian) detector joined August 1, 2017
  ○ 3 interferometers observing (LHO, LLO, Virgo)
  ○ Data analysis ongoing
  ○ Stay tuned for interesting papers...
KAGRA: Interferometer Underground in Japan

Photo credit to Govert Schilling, Sky and Telescope
A very optimistic time for gravitational wave community in India. Great update by @somakrc on #LIGOIndia! #LVCmeeting2017 @CERN
Gravitational-wave astronomy is here.

Incredible time to be an astronomer.
Onto important matters like identity management...
LIGO Identity and Access Management

Two theaters of engagement for LIGO IdM:

1. Enabling collaboration for the broad gravitational-wave astronomy community

2. Enabling collaboration for LIGO itself as a project
Enabling GW Astronomy Collaboration
Enabling GW Astronomy Collaboration

- Collaboration platform hosted at gw-astronomy.org
  - COmanage Registry
  - Sympa email list service
  - Wiki
  - Gravitational Wave Candidate Event Database (GraceDB)
Welcome to COmanage Registry. Please select a collaboration.

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<td>GWIC (Not a Member)</td>
<td>Gravitational Wave International Committee</td>
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<td>Combined search for core-collapse supernovae using neutrino and gravitational waves</td>
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<td>LIGO Virgo Electromagnetic Followup</td>
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Enabling GW Astronomy Collaboration

- Formally hosted and operated by University of Wisconsin-Milwaukee
  - SAML SPs registered in InCommon by UWM
  - Google, UnitedID, NCSA, XSEDE IdPofLR
- Increasing role and importance in era of GW Astronomy
  - Facilitating KAGRA and LIGO collaboration
  - Facilitating collaboration with electromagnetic and neutrino astronomers
gw-astronomy.org Challenges and Future

● Deliver more with less
  ○ Mature research collaboration capabilities with less FTE effort
  ○ Specifically less FTE effort on identity infrastructure
  ○ Focus effort at application layer (GraceDB and similar)

● Plan: Move much of IdM infrastructure to CILogon
  ○ CILogon2 project marries CILogon and COmanage
  ○ Move gw-astronomy.org registry to CILogon
  ○ Move LDAP as the "attribute backplane"
  ○ Move SAML attribute authority

● What of applications?
  ○ Non-domain applications (wiki, email list server,...) take much of the effort
  ○ If not move then focus on delivering higher level of service
gw-astronomy.org Challenges and Future

- Do the SPs consume SAML or OIDC?
  - SAML cost is NOT the technology
  - SAML cost is working within the higher ed and research federations
  - CILogon delivers federated identity as a consumable service

- If SAML then is it is time to proxy?!
  - Entity categories did not and will not solve attribute release
  - Consent did not and will not solve attribute release
  - Progress requires a proxy
  - Promising technology stacks (SaToSa from SUNET)
  - New: LIGO has planned architecture for proxy, will begin with collaborative writing platform(s)
  - Less focus on pushing adoption of R&S
gw-astronomy.org Challenges and Future

● SIRTFI on hold for SPs
  ○ InCommon requires C level campus engagement for SIRTFI pilot
  ○ Self asserting capability not before May 2018

● Seeking more participation from some eduGAIN partners
  ○ KAGRA project in Japan will drive needs
  ○ Paper writing with astronomers will drive needs
  ○ Growing important effort in Korea
  ○ Growing important effort in India

● China?
  ○ "Candidate" status in eduGAIN
  ○ All IdPs of last resort not operated by LIGO use Google Captcha
  ○ Cirrus Identity has Chinese social media gateway (Weibo) now
    ■ Integrators that want accounts for testing but that do not read Chinese should find a Chinese-reading friend to help!
gw-astronomy.org Challenges and Future

- Of Governance?
  - National identity federations and eduGAIN as critical infrastructure
  - Yet no role for research in governance (completely IdP dominated today)
  - Can/should IGTF be the "science federation" that joins eduGAIN?
Enabling the LIGO Scientific Collaboration
LIGO Scientific Collaboration

- LIGO Laboratory operated by Caltech and MIT
- Research groups sign MOUs with LIGO Laboratory to create LSC
- Full data sharing agreement with French & Italian Virgo project
- Roughly 1200 scientists worldwide that are "LIGO" from IdM perspective

- LIGO has operated its own SAML IdP since 2008
- SSO for the LIGO collaboration
LIGO IdM Challenges and Future

- Can LIGO move to an entirely federated IdM infrastructure?
  - 75% of institutions in LIGO are members of InCommon
  - 95% of US researchers in LIGO at InCommon institutions
  - 75% of nations participating in LIGO in eduGAIN
  - 93% of LIGO researchers are in nations in eduGAIN
    ■ Thanks to Warren Anderson for gathering statistics...

- Proposal submitted to US National Science Foundation
  - If funded, Funded project will begin to move LIGO to entirely consuming federated identity
  - Expected 5 3 year project
LIGO IdM Challenges and Future

- Over 100 SAML SPs need to be pushed into eduGAIN
  - Many not in ligo.org URL space
  - ac.uk, caltech.edu, iucaa.in, mit.edu, mpg.de, re.kr, res.in, syr.edu, uni-hannover.de, uwm.edu
- Proxy
LIGO IdM Challenges and Future

- SIRTFI adoption by campus IdPs will be critical
  - Eventually will be required for accessing LIGO resources
  - Will start flagging IdPs during discovery that are not compliant
- "A" baseline "LOA" will be critical
  - Must be demonstrable
  - That does not necessarily mean audits
- If your campus hosts astronomers but you do not assert SIRTFI, ready the Help Desk...scientist users will be coming for you...