Security Issues in Research

Jane Drews
Information Technology Security Officer
The University of Iowa
For Discussion

1. What About Research Security?
2. The UI Environment
3. Issues, Risks and Countermeasures
4. Other Considerations
WHAT ABOUT RESEARCH SECURITY?
“…we will transform our schools and colleges and universities to meet the demands of a new age….“  President Barack Obama
Research Security: What’s Different, What’s Not?

Confidentiality
• Privacy of the subjects
• Sensitivity of the research

Integrity
• Correctness, consistency of research findings
• Intellectual Property Ownership

Availability
• Future funding sources
• Personal and Institutional Reputation
Security: what WE don’t know can hurt YOU…

- Offer assistance, reviews, consulting
- Education and training
- Services
  - Data Storage and repositories
  - Server clusters
  - IT professional administrators
  - Backups, disaster recovery
  - Monitoring and IDS
THE UI ENVIRONMENT
The University of Iowa

- Founded Feb 25, 1847
- 1st US public university to admit women & men equally
- 11 Colleges
- Enrollment ~30,500
- Faculty Ratio 15:1
- 1,700 acres
- 129 major buildings
- Budget FY09 $2.7B
The Research Environment at UI

- FY08 = $386M external
- Iowa ranks 18th in federal research funding
- $257.5M; 1,418 awards
- Research Foundation filed 130 patents in FY07, $15M revenues
- Oakdale TIC has admitted 90 start-ups since 1984
ISSUES, RISKS AND COUNTERMEASURES
## What is your tolerance for risk?

<table>
<thead>
<tr>
<th>Risk Areas:</th>
<th>Counter-Measures:</th>
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<tbody>
<tr>
<td>Unauthorized access to sensitive information</td>
<td>Restrictive file access permissions</td>
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<tr>
<td></td>
<td>Individual accounts for each person</td>
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<td></td>
<td>Complex (&quot;strong&quot;) passwords</td>
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<td>Regular access permissions reviews</td>
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<td>Compromised system security as a result of access by an intruder</td>
<td>Logging of activity on the computer system</td>
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<td>Monitoring/alerting of computer system events</td>
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<td>Regular updates of systems and applications</td>
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<td>Restrictive Access/Firewalls</td>
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<td>Interception of sensitive information on the network</td>
<td>Network encryption such as SSL or SSH</td>
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<td>File or folder encryption</td>
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<td>Physical loss of computer room or equipment</td>
<td>Regular backups</td>
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<td>Disaster recovery procedures developed and tested</td>
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<td>Errors or corruption introduced into systems</td>
<td>Data integrity controls</td>
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<td>Software change management procedures and testing</td>
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University Policy & Regulations

- Information Security Policy
- Social Security numbers
- Health Insurance Portability and Accountability Act (HIPAA)
- Federal Information Security Management Act (FISMA)
- Security breach notification (State)
- IRB (and NIH, DOD, et al) notification
Iowa’s Strategy, Responses

- Provide Services
- Provide Resources
- Provide Consulting
- Increase Awareness
Services for Researchers

• IT staffs to support research
• Central servers/clusters for applications
• Central data storage options/solutions
• Data center caliber physical security
• Operational controls
  ◦ Firewall, user and system administration, backup/DR, etc
1. Secure authentication; authorization

2. General Information
   a) Attributes, Purpose, Location and Comments

3. Network Information
   a) Static IP’s only, MAC addresses optional, FQDN(s) optional

4. Contact Information – individuals or groups

5. Services – developing plans to build out
Resources for Research

- Regular vulnerability scanning
  - Also self-serve ad-hoc

- Checklists – minimum requirements
  - Includes policy and help links

- Software
Consulting for Research

- **FISMA Security Plan Template**
  - Includes enterprise controls
  - Specifies local requirements

- **Security risk assessments process**
  - No charge
  - External, internal, on-site review
  - Documented

- **Recommendations**
Awareness for Research

- Link to HawkIRB application
  - Upon approval, PI receives info from ITSO
  - ITSO reviews responses
- Training seminars (2-4 per year)
- On-line security awareness
  - Growing requirement
  - Records and reporting available
- General campus communications
- Community building
OTHER CONSIDERATIONS
Research Challenges

- Funding (F&A), IRB/HSO requirements
- Data Intensive, High Performance, Grids
  - Decidedly NOT your typical applications
- Making collaborations work
- Mobile Devices – Travel abroad
- Maintaining Awareness
  - Turnover, on-boarding
Questions?

JANE-DREWS@UIOWA.EDU
HTTP://ITSECURITY.UIOWA.EDU
(319) 335-6332