The RAVEN Project

Research Advisory for Vulnerabilities, Exploits, and Networks
A project by Lochlan McElroy

Objective

The RAVEN Project aims to establish a student-led cybersecurity research initiative at Western Michigan University. This group will focus on identifying vulnerabilities, analyzing exploits, monitoring threat actors, and providing actionable insights to the campus community and beyond. Through collaboration with existing university organizations and departments, the RAVEN Project will position WMU as a proactive leader in cybersecurity education and outreach.

Core Goals

1. **Research and Analysis**
   - Perform in-depth malware analysis to identify patterns, behaviors, and mitigation strategies.
   - Investigate vulnerabilities in commonly used software, systems, and network configurations.
   - Track and analyze threat actors, including techniques, tactics, and procedures (TTPs).
2. **Community Advisories**
   - Publish regular advisories on emerging cybersecurity threats to keep students, staff, and the local community informed.

- Partner with university departments, such as OIT, to strengthen campus-wide cybersecurity measures.

3. **Collaboration with Campus Organizations**
   - Work alongside the Computer Club and Cybersecurity Club to engage students in hands-on research and skill development.
   - Partner with WMU's Office of Information Technology (OIT) to provide a pipeline of actionable threat intelligence.

4. **Educational Outreach**
   - Host workshops, webinars, and training sessions with students, staff, and surrounding high schools.
   - Offer free unofficial consultations to departments, student groups, and local organizations regarding best practices in cybersecurity.

5. **Public Engagement**
   - Use the RAVEN Project as a platform to showcase WMU's commitment to cybersecurity research.
   - Contribute to public knowledge by publishing findings and resources through blogs, white papers, and presentations at academic conferences.

Implementation Plan

1. **Phase 1: Foundation (Months 1-3)**
   - Establish the leadership structure and define roles within the RAVEN Project.
   - Build relationships with the Computer Club, Cybersecurity Club, and OIT.

- Draft a memorandum of understanding (MoU) with university organizations for collaboration and resource sharing.
- Participate in outreach activities to build membership.

2. **Phase 2: Research and Development (Months 4–12)**
   - Initiate research projects in malware analysis, vulnerability research, and threat actor profiling.
   - Develop an internal knowledge-sharing platform (e.g., a wiki or documentation hub) for findings and methodologies.
   - Launch the RAVEN advisory board to guide long-term objectives and strategies.

3. **Phase 3: Community Outreach (Ongoing)**
   - Publish monthly advisories on WMU's public channels.
   - Host quarterly workshops and seminars, open to all WMU students and staff.
   - Offer internships or directed research opportunities for students to gain practical experience.

4. **Phase 4: Reporting and Feedback (Annual)**
   - Present an annual report to WMU leadership, highlighting achievements, challenges, and goals.
   - Gather feedback from stakeholders to refine the program.

Potential Benefits

1. **For Students:**
   - Hands-on experience in cutting-edge cybersecurity research.
   - Opportunities to network with professionals and gain practical skills.

2. **For the University:**

- ○ Enhanced reputation as a leader in cybersecurity education and research.
- ○ Improved campus-wide cybersecurity practices through collaboration with OIT.
3. **For the Community:**
   - ○ Increased awareness of cybersecurity threats.
   - ○ A reliable source of actionable cybersecurity information and advice.

Resources Needed (Preliminary)

- Lab space for secure research & Airgapping.
- Computing resources, including virtual machines and sandbox environments.
- Funding for software licenses and tools (e.g., malware analysis platforms, network monitoring tools).
- Administrative support for coordination with university departments.

Proposed Launch Date
The RAVEN Project aims to begin its initial phase in **January 2024**, pending approval and collaboration with relevant stakeholders.

The RAVEN Project has the potential to make a significant impact at WMU and beyond. By fostering collaboration, research, and outreach, this initiative will prepare students for cybersecurity careers while promoting a culture of security awareness across the community.