

TUTORIAL FOR 23rd NISSC

TITLE: The OM-AM Framework and Role-Based Access Control

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DURATION: 90 minutes

ABSTRACT

Cyberspace security is fundamentally about control of authority and trust. We don't know what form future systems will take, but they will surely be very different from today's. We can postulate they will be large-scale, highly decentralized, pervasive, cross organizational boundaries and evolve rapidly. Current security doctrine cannot deal with this complex and fluid environment that is inevitably emerging.

This tutorial will discuss the speaker's recently proposed OM-AM framework as a promising approach to security engineering in this brave new world. OM-AM comprises objective, model, architecture and mechanism layers (surrounded by a sea of assurance). Objective and model are concerned with articulating what the security objectives and tradeoffs are. Architecture and mechanism address how to meet these requirements. OM-AM does not imply a top-down waterfall-style software engineering process. The interaction between layers is more complex and not so much process driven. Similar to layers in a network protocol stack the mapping between adjacent layers is many-to-many. A single policy can be supported by multiple models, while a single model can support multiple policies. Likewise for the model-architecture and architecture-mechanism relationships.

We will present the OM-AM framework and its underlying motivation. We will demonstrate the power of this framework by showing how it applies to role-based access control. The basic idea of OM-AM is simple. We hope to inspire security professionals to incorporate it in their security doctrine.

TARGET AUDIENCE

Intermediate (assumes basic familiarity with Infosec principles and practice) but is self-contained.

BRIEF BIO

Professor Ravi Sandhu is Director of the Laboratory for Information Security Technology at George Mason University and President of Secusafe Associates. He has authored over 130 papers on Information and System Security in refereed publications. He is founding Editor-in-Chief of ACM's Transactions on Information and Systems Security, Chairman of ACM SIGSAC and a member of the editorial board of IEEE Internet Computing. He founded the ACM Conference on Computer and Communications Security and the ACM Workshop on Role-Based Access Control, and chairs their steering committees. He has also served as Program Chair of the IEEE Computer Security Foundations Workshop, the Annual Computer Security Applications Conference and the IFIP Workshop on Database Security. He has consulted for numerous organizations and has taught short courses all over the world.