

# Cyber Security Design Write Up 1

## Due

March 9, 2006.

## Goal

Analyze the security issues for a data server of YoYoDyne's critical intellectual property.

## Scenario

YoYoDyne is a manufacturing design company. They invent new manufacturing systems on contract, and they also have a model where they will license out portions of their design portfolio. Currently, they rely on paper to exchange their designs with their customers.

YoYoDyne would like to move to a computerized model to provide their designs to their customers, and they have contracted you to do a security review of their design options. You are to contract on their host security issues. They are hiring a different firm to examine the network security issues.

The intellectual property represented by their manufacturing designs is the basis of the company's value. Therefore, any computer programs that provide access to this information are of critical security importance. Avoiding denial of service is important, but it is far more critical that confidentiality of this information is maintained from their competitors and from customers who have not paid the appropriate fees. The integrity of the data is also vital. If a customer downloads a faulty design, the reputation of YoYoDyne is hurt.

You can view the application as a data server. YoYoDyne wants to support three tiers of licensed access, where each more expensive tier includes the information in the previous tier. In addition, there are custom contracts where each custom contract has access to its unique information. There are currently 10's of customers at each tier, and approximately 20 custom contracts active at any point in time. They aim to increase these numbers by a factor of 10 in the next 3 years. Access is licensed for a year at a time. If a customer is found to have broken contract (e.g., by sharing YoYoDyne information with unauthorized third parties), access must be terminated immediately.

The executives at YoYoDyne have read about worms in the popular press and are concerned that their server could be taken over by their competitors. Your analysis should include suggestions on techniques for protecting the system from malevolent attackers.

## Your tasks

You will need to present your analysis in 3 pages (or 4 pages for graduate students taking the class for four credits). Your analysis needs to address:

- What operating system and supporting software should be used to implement the YoYoDyne data server?
- What is a reasonable data access control and protection system?
- How will the system be administered?
- What threat models should the implementation consider?

Plus any other issues that you think are relevant to the secure installation and running of this application.