August 7, 1996

Analyzing Caldera's Industry and Market

A Report

This report examines some key strategic questions now facing Caldera by asking the question "What Industry are we in or should we be in, and why?" It bases many of its assumptions on models taken from the Harvard Business School, though the facts assigned to these models may not be complete in the analysis that follows.

"We are not all things to all people" --Bryan Sparks

After a year of strong reviews and technical advancements, with still weak product sales, Caldera is faced with defining more precisely what it wishes to be within the rapidly moving computer software arena.

Part of this definition revolves around having concrete mission and vision statements that can direct and inspire all employees. In order to create such statements, Caldera must understand the goals it wishes to pursue, based on large measure on the industry it wishes to participate in. To that end, the paragraphs below begin this process by examining some industries that Caldera is considering or is in already.

Several possible industry category classifications which Caldera can or can continue to pursue include:

- Linux OS
- Desktop OS
- Server OS
- Internet/Intranet Server (OS)

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Category characteristics

In this section, we list the characteristics of the industry classifications given above. These are not complete, and could be greatly expanded (as could the remainder of this report) by the inclusion of such numbers as total market size, growth rate, and market-share of industry leaders. But as those numbers are not available, we will proceed without them.

Linux OS

Definition: A complete Linux distribution, used for hacking, Internet servers, development, or strange personal choice for a desktop OS.

Characteristics.

- Very low cost ($10-$60)
- No support, and none expected (some provided by email, or by phone, paid)
- Retail distribution model, including some mail order
- Upgrades very regularly (every 4-6 weeks for some)
- * Highly technical product
- Ease of use not highly relevant
- Customer is a [innovator|visionary|mainstream|laggard] and is
  - * Very technical
  - * Very price sensitive
  - * Very eager for latest technology

Desktop OS

Definition: An easy-to-use day-to-day work environment for personal productivity applications on a mid-to-high range Intel PC.

Characteristics.

- * Low cost ($75-$200), but included on most systems
- * Some good support is expected, mostly for installation, additional for pay
- Retail or OEM distribution model, a very few through VARs
- * Upgrades moderate, every 12-18 months at earliest
- Moderately technical product in customers' eyes
- Ease of use extremely relevant
- Customer is a [innovator|visionary|mainstream|laggard] (all use it) and is
  - Completely un-technical in general
  - * Moderate price sensitivity, though overshadowed by OEM nature
  - Ambivalent about latest technology (in general)

Server OS

Definition: A powerful OS on a powerful machine (Intel or other), used to serve groups of Desktop OS PCs, as a file and print server, application server for vertical (some hor.) apps, and for some non-dedicated Internet/router/gateway applications.

Characteristics.

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- High cost ($500-$4,000)
- Strong support demanded, but at high cost.
- * VAR distribution model, with some direct and very little retail
- Upgrades slow, every 24-36 months
- * Highly technical product in customers' eyes
- * Ease of use is a benefit (leaders offer it), but not key
- Customer is a [innovator|visionary|mainstream|laggard] and is

  * Quite technical

  Generally not price sensitive

  * Eager for latest technology, but generally patient

Internet/Intranet Server (OS)

Definition: Undefined category served by all three categories above. Uses a computer of indeterminate power to provide a variety of Internet services/protocols across a network. In truth, it is like a specialized application server, but that is not generally understood. The Intranet component, still less so.

Note that this "industry" is more like a service provided by the other industries than an industry of its own, though many companies are striving to make it separate.

Characteristics.

- Wide range of costs (free to $4,000)
- Strong support needed, but provided sporadically, (depending on skill of user and infrastructure of vendor).
- Retail, direct, OEM, and VAR distribution models, depending on vendor.
- Upgrades extremely rapidly, every 3-6 months
- * Highly technical product in customers' eyes
- * Ease of use is a benefit (leaders offer it), and becoming key
- Customer is a [innovator|visionary|mainstream|laggard] and is

  From highly technical to not at all technical

  Somewhat price sensitive (depending on needs)

  Eager for latest technology, generally not patient

The features and goals of the Caldera Network Desktop are starred in the above lists. Note that we don't fit well in a any category. Trying to be part of everything only confuses the customer.

Our stated focus is the poorly-defined Internet/Intranet Server OS, but I firmly believe that:

We do not have the marketing budget to define a new category for Caldera to dominate.

Next, let's examine these four industries using an analysis taken from Michael Porter at Harvard Business School.

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This analysis looks at the attractiveness of an industry based on five key factors that affect the ultimate profit potential of that industry. These can be summed up in the phrase "coping with competition," understanding that competition for the customers' dollar takes many forms.

The five factors are

1. Rivalry between the players within the industry.
2. Barriers to Entry/Threat of new entrants in the industry.
3. Power that vendors/suppliers hold over industry players.
4. Power that customers hold industry players.
5. Substitute products that customers can switch to in another industry

By assigning a positive or negative to each of these five factors, a general indication is given of the attractiveness of participating in that industry. For example, 2. Barriers to Entry, is a positive if the barriers are high, because that generally makes the industry more profitable for those already competing in it. Rivalry within the industry would be a plus if market conditions were such that all players in the industry could be profitable without needing to all compete on price, thus making none of them highly profitable.

Below are comments for each of the four industries (Linux, Desktop, Server, and Internet), for each of the five factors. These are perhaps best understood when viewed in a chart by industry.

The Linux OS Industry.

Players:

Caldera, RedHat, Yggdrasil, Slackware, InfoMagic, Walnut Creek, Pacific Hi-Tech, TransAmeritech, other even smaller players.

(-) 1. Rivalry between the players within the industry.

Rivalry within the Linux industry is intense.

- Players are numerous and are roughly equal in size and power.
- The product lacks any sustainable differentiation or switching costs between players; customers are not locked in to one provider, and actually refuse to become locked in. Though many customers develop a loyalty to one player, any player can choose to stage a raid on any other player's market share with a fair amount of success.
- Players are quite diverse in strategy and "personality."

(-) 2. Barriers to Entry/Threat of new entrants in the industry.

Barriers to entry are minimal.

- There are no economies of scale to be achieved by existing players.
- Almost no capital investment is needed to enter the industry (estimated capital required is less than $10,000).

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- There is little product differentiation in customers' minds. No strong brand identification to thwart new entries.
- Retail and mail order distribution channels present no obstacle to a person with a modicum of capital and a few contacts.

(-) 3. Power that vendors/ suppliers hold over industry players.

Vendors and supplies of raw goods hold no power over the industry players.

- Commodity printing/packaging/CD stamping services are the sole raw materials for the industry.
- Still, the industry players hold no power over these raw material vendors, either, as all Linux players are very small customers for the vendors.

Vendors and supplies of technology hold great power of the industry.

- All industry players are beholden to the licensing terms of the supplier (the Internet).
- All industry players get technology from the same supplier, at the same time.
- Almost all value provided by industry players comes from the supplier. The industry adds value only as a packaging service (and because price sensitivity is so high, differentiation is nigh impossible).

(-) 4. Power that customers hold over industry players.

Customers hold great power over the players in the industry.

- Customers can switch providers with very little effort.
- Customers can price shop efficiently.
- Customers demand rapid technology updates that strain players resources.
- Customers can get completely bypass the industry and get the product from the supplier!

(+) 5. Substitute products that customers can switch to in another industry

Substitute products are of little threat to the Linux industry.

As far as Linux customers are concerned: "There's nothing else like it."

Several unique characteristics of the Linux industry prevent customers from seriously considering switching to another product.

- Price sensitivity (nothing else is even close to Linux pricing).
- Pace of technology development (nothing else is even close).
- Sense of belonging to a special community.

The BSD option is one thing that disgruntled Linux customers sometimes try.

Summary

Overall rating of the Linux OS industry: Four minus, one plus.

The Linux OS industry appears to be a very poor industry to be in. It will be very difficult to make a long-term profit in this industry.

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The Desktop OS Industry.

Players:

Microsoft, IBM, Apple

(-) 1. Rivalry between the players within the industry.

Rivalry within the Desktop OS industry is brutal to the point of illegality.

- The existence of Microsoft in the Desktop market has, to this time, prevented any other competitors from having any hope of long-term profitability.
- Other players include IBM, who continues to lose money on OS/2, and Apple, who only sells Desktop OS software because they also sell hardware.
- In customers' eyes, Desktop products lack sufficient differentiation to warrant leaving the perceived benefits of Microsoft products, which include ease-of-use and variety of applications.
- Although switching costs are high, leading to brand loyalty within the industry, Microsoft pricing and distribution tactics have lead others to switch to Microsoft without having a choice.
- Increased interoperability among various players' products has lead to switching being more viable, though it is greatly outweighed by the other factors here.

(+) 2. Barriers to Entry/ Threat of new entrants in the industry.

Barriers to entry are high.

- Development costs to create a competitive Desktop OS are very high.
- Brand identification for the installed base of systems is very strong, preventing new entrants from gaining a foothold.
- Capital requirements, based on development, marketing, and infrastructure costs, are incredibly high, on the order of $100+ million using traditional models.
- The OEM distribution channel, the strongest and largest for the Desktop OS market, is basically closed to new entrants for all but the smallest OEMs.
- The retail distribution channel, second key area for this industry, is difficult to penetrate without large capital outlays in shelving fees and marketing efforts (pull marketing).

(+) 3. Power that vendors/ suppliers hold over industry players.

Vendors and supplies hold no power over the Desktop OS industry players.

- Commodity printing/packaging/CD stamping services are almost the sole materials for the industry.
- Industry players are large companies that can force price reductions by shopping these commodity services among vendors.
- No other inputs to the industry exist except brain power, and the large companies controlling this industry have great sway and reputation in the nation's top engineering schools.

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(+) 4. Power that customers hold over industry players.

Customers hold very little power over the players in the Desktop OS industry.

- Customers cannot switch providers without quite a large effort and expense in software, training, and perhaps hardware.
- Customers cannot price shop efficiently, because most purchases are made as part of a hardware purchase, where the Desktop OS is included as part of a package.
- Customers are generally satisfied with products and do not demand rapid technology updates that would strain players resources.

(+) 5. Substitute products that customers can switch to in another industry

Substitute products are of little threat to the Desktop OS industry.

- Possible substitute products are either very costly (e.g. a server OS product), very hard to obtain (require re-installation by a non-technical user), or are technologically and aesthetically inferior to the Desktop PC running a Desktop OS (like a pen computer, databank handheld, abacus, etc.)
- Customers use the Desktop OS because of the platform that it provides for other activities (running preferred software applications).
- Possible alternatives to owning a Desktop PC with a Desktop OS (e.g. campus computer lab), are comparably highly inconvenient, and are increasingly likely to include the same Desktop OS the customer wished to find a substitute for, because of the increasingly monopolistic nature of this industry.

Summary

Overall rating of the Desktop OS industry: Four plus, one minus.

The Desktop OS industry appears to be a *very* good industry to be in, except for the brutal competition within the industry. Because this competition has become extremely monopolistic, entry of other viable players is highly unlikely. This will result in very strong profits for the dominant player, but quickly reduces customer satisfaction and technological innovation.

The Server OS Industry.

Players:

Microsoft, SunSoft, HP, DEC, IBM, Caldera, SGI Novell, SCO, other Linux

(-) 1. Rivalry between the players within the industry.

Rivalry within the Server OS industry is heated.

- Competitors are numerous and are roughly equal in size and power (within this industry).
- In the eyes of many customers, many players' products lack differentiation, leading to hard-fought battles for customer mindshare.
- Players scramble to leapfrog each other as new technologies come to the front and are demanded by customers.
- Exit barriers are high. Players are very reluctant to abandon existing reputation and customer base.

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- On the good side, switching between players carries a high cost, leading to brand loyalty within the industry.
- But, increased interoperability among players' products has lead to switching being more viable.
- Large capital outlays for marketing and development are required, and continue to eat into profits. But these outlays are necessary to remain at the forefront of technology and of the customer's mind.

(+) 2. Barriers to Entry/ Threat of new entrants in the industry.

Barriers to entry are high.

- Development costs to create a competitive Server OS are very high.
- Brand identification for the installed base of systems is very strong, preventing new entrants from gaining a foothold.
- Capital requirements, based on development, marketing, and infrastructure costs, are incredibly high, on the order of $100+ million using traditional models.
- The VAR distribution channel, the strongest and largest for the Server OS market, is difficult and costly for new entrants to effectively penetrate.
- Other channels may be easier to enter, but still require a large infrastructure of training, support, marketing, etc.

(+) 3. Power that vendors/ suppliers hold over industry players.

Vendors and supplies hold little power over the Server OS industry players.

- Commodity printing/packaging/CD stamping services are almost the sole materials for the industry.
- Industry players are generally large companies that can force price reductions by shopping these commodity services among vendors.
- Licensed technology as an input is generally held by small computer companies. These companies sometimes hold technology aces, but are easily bought or coerced by partnerships with the industry giants.
- Brain power as an input to technology development is well in hand. The large companies controlling this industry have great sway and reputation in the nation's top engineering schools.

(+) 4. Power that customers hold over industry players.

Customers hold very little power over the players in the Server OS industry.

- Customers cannot switch providers without quite a large effort and expense in software, training, and often hardware.
- Customers cannot price shop efficiently, because most purchases are made from a VAR, where support and consulting services are included as part of the price.
- Customers are generally satisfied with products and do not demand rapid technology updates that would strain players resources.
- Players provide a tremendous value add in integration and infrastructure. Customers cannot get this value by going directly to companies from which players license technology (suppliers).

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(+) 5. Substitute products that customers can switch to in another industry

Substitute products are of little threat to the Server OS industry.

- Linux is being used more and more as a substitute product by price-sensitive customers because it provides similar functionality at a greatly reduced cost (though there are other problems with this alternative, e.g. support, training, infrastructure and upgrade policies)
- Some possible substitute products are either very costly (e.g. mainframe computer systems), or are technologically and aesthetically inferior to a computer running a Server OS (these include things like filing cabinets, Express Mail, telephone calls, etc.)
- However, other possible alternatives to owning a computer with a Server OS are not unreasonable. The basic alternative is to use a service company to provide the services that the Server OS would provide, such as a Database application and email service. This is generally not a preferred solution in today's business environment, however, so this item remains a plus.
- Customers use the Server OS because of the services that it provides to their organization, such as email delivery, application serving, secure remote access, file and print services, etc.

Summary

Overall rating of the Server OS industry: Four plus, one minus.

The Server OS industry appears to be a very good industry to be in. Strong competition within the industry promises to keep profits from being comparable to the Desktop OS industry, but will also continue to drive technology innovation and keep prices down, thus better serving customers.

The Internet/Intranet Server OS Industry.

Players:

Microsoft, SunSoft, HP, DEC, IBM, Caldera, SGI, BSDI, all Linux OS players, others...

Note that this industry is very difficult to analyze because not even the players in it know what it is, much less the customers who want to purchase a product from them. Presented below are some confusing notes regarding currently observable trends.

(-) 1. Rivalry between the players within the industry.

Rivalry within the Internet/Intranet Server OS industry is heated.

- Competitors are numerous. Many are roughly equal in size and power, but a couple are very large and many are very small. The very small should not expect to survive except as niche players without a strong, sustainable technology lead (customers here are not highly price sensitive).
- Because customers do not understand the technology, only its outcome, many players' products are perceived as lacking differentiation. This leads to marketing strength being a controlling factor in leading the industry.

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- Players scramble to leapfrog each other as new technologies come to the front and are demanded by customers.
- Switching between players carries a high cost, but not nearly as high as a Desktop or Server OS. Thus, brand loyalty within the industry is not very strong right now.
- Players are very different in personality and long-term goals. The goals are rarely apparent to the customer, and the personalities are often a facade for the perceived preference of the customer, who is basically wandering in a foreign bazaar with his traveller's checks in hand.

(-) 2. Barriers to Entry/Threat of new entrants in the industry.

Barriers to entry are moderate, but are rising as strong players raise the bar. Still, new entrants continue to appear and gain strong positions.

- Because entrants are coming from a variety of other industries (hardware, Internet accessories, Server OS, Desktop OS...), they have many of the necessary capital and technology components needed to enter this industry.
- Development costs are very low for those with existing technologies. In fact, they are probably much lower than the marketing costs associated with entering and carving a strong place.
- Brand identification is still weak, though many names popular in other industries are using that name to build up in this industry, with fair success.
- Many distribution channels are used, and the players wishing to enter already have control of enough options to reduce this as a barrier to entry.
- Because customers are uncertain what they want or need from players, strong initial marketing efforts that tell the customer what he needs are effective at capturing a portion of the market for new entrants.
- New technologies that are required by savvy customers are most often publicly available, where any existing or potential new entrant can use them to build business. Every new technology step is an opportunity for an existing player to lose substantial ground to a fast new entrant.

(+) 3. Power that vendors/ suppliers hold over industry players.

Vendors and supplies hold little power over the Internet/Intranet Server OS industry players.

- Commodity printing/packaging/CD stamping services are almost the sole materials for the industry.
- Licensed technology as an input is generally held by small computer companies. Sometimes these companies can control efforts of larger companies because of the technical landscape in this industry. This may change in the next 18 months, however, as the largest players solidify their positions.
- Brain power as an input to technology development is controlled only partially by the industry. Many technology developers are part of the Internet (as a distinct supplier) and may not acquiesce to the demands of players large or small.

(+) 4. Power that customers hold over industry players.

Customers hold very little power over the players in the Internet/Intranet Server OS industry.

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- Customers generally have so little understanding of what the options are, what they really need, and what the industry offers, that they are often unable to make decisions that are well-informed about the technologies and prices that are available.
- However, as customers become more informed, they may realize that they can switch providers without a huge cost.
- Customers also demand the latest technology from the player they choose (defined in their eyes by functionality, not by technology).
- Players provide a tremendous value add in educating the customer about how to achieve the vague goals that the customer comes to the player with (hand-holding). Customers often feel strongly about supporting the industry because of this.

(+) 5. Substitute products that customers can switch to in another industry

Substitute products are of little threat to the Internet/Intranet Server OS industry.

- As the Internet/Intranet market phenomenon gains momentum, substitute products will be seem as increasingly inferior.
- One exception is the use of Internet hosting or service sites rather than having an Internet/Intranet server themselves. But because price sensitivity is only moderately high, and the capabilities offered by owning a complete Internet/Intranet Server OS product already outweigh the hosting option (and promise to continue to outstrip it), the popularity of this option will not overtake the ownership route.
- Besides these two options (owning or using an Internet host), no other technology can do for customers what the Internet can do (at least in their minds). This gives all industry players a very strong position.

Summary

Overall rating of the Internet/Intranet Server OS industry: Three plus, Two minus.

The Internet/Intranet Server OS industry appears to be a good industry to be in. Strong competition within the industry and a continuing stream of new entrants as it matures promise an exciting ride for all players. They will continue to hold a strong position, however, and only a certain class of new entrants will attempt to join them. Profits will begin to rise within 24 months as the initial flood of entrants settles down and customers better learn what they want and who can best provide it for them.

Recommendations

Based on the above analysis of the possible industries that Caldera can choose to pursue, we will outline some pros and cons of each choice, then recommend what seems to make the most sense for Caldera.

The Linux Industry

This is a very poor industry to be in, insofar as becoming a profitable company. Nevertheless, Caldera's history and development model (on which Caldera is counting to overcome the barriers to entry in the other industries) make it imperative that Caldera participate in the Linux industry.

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Participating in the Linux industry carries relatively little capital cost. The downside of being in this industry is the possible de-focus on larger goals, confusion of the market, and the need to segregate products to prevent cannibalization within the product line. Still, taking sales from yourself is better than having someone else take them, even if you make little to no profit on them.

The Desktop OS Industry

The basic problem of this industry is Microsoft. Until Microsoft can be overcome somehow, seeking to compete in this industry is almost worthless. On the positive side, if someone could compete here, the rewards are tremendous.

The Server OS Industry

This growing industry shows great promise, but the capital and infrastructure requirements are high, even for those who already have a strong position in the computer industry. Having a strong competitive edge may be the key to entering this market. Again, the rewards are great for those who can do so.

The Internet/Intranet Server Industry

This industry is still being defined. Anyone who wishes to participate in it must take on part of the burden of educating the customer about what the industry is and what the customer needs from it. This is an expensive proposition, but the growth is higher in this industry than in any of the other three listed here.

Choosing an Industry

It appears from these facts that Caldera should choose the following focus:

- Make the Server OS industry the primary focus of Caldera for the time being. This is a high-profit industry in which Caldera can compete well if some key features are added to Caldera's offering.
- Keep a foot in the Linux industry, because it is necessary for our technology development and is a part of our larger mission. It is also low-cost to be there.
- Move slowly into the Desktop OS market with DRDOS and Caldera Linux products as Microsoft is tamed and awareness of Caldera grows. Do not focus on this industry or deplete resources working on it before it is viable.
- Focus on the Internet/Intranet OS Industry as a service provided by the Server OS products, just as most current players are doing. This should not defocus the larger message, but can provide a strong entry point into the crowded Server OS market.

These recommendations still require a large amount of capital, and Caldera is badly undercapitalized at this time. While self-sufficiency is admirable, I recommend securing public or VC funding as soon as possible if recommendations like these are to be followed.

Implementation

I'll leave this section blank for today, but basically implementation demands that most or all of the characteristics of the chosen industry be followed. That is, the Linux OS product must have most or all of the characteristics accepted as part of that industry and appeal to the customers of that industry. Likewise with the other three industries.

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Corporate Focus

Below are some initial ideas for a mission statement and supporting information to direct company futures. These statements are designed to be broad. They should apply to the recent past, the present, and the foreseeable future.

Caldera's Mission

We advance technologies that we believe are worthwhile in order to provide high-quality system software to consumers at a very strong value point. We do this within an environment of growth that fosters personal development and builds on the principles and values held by our Founders, such as integrity, hard work, honesty, and kindness.

Caldera's Vision

We aim to shake up the traditionalists in the computer industry by using unusual development methods (Internet contractors and Internet communication). We want to do this in order to improve not the state of the art so much as the state of the average. We believe we can drive growth in the industry and raise the bar on the technology people commonly use by drawing on these underutilized development, communication, and distribution models.

We realize that we are not the first to do these things, but we are in a unique position to push many of these practices to a much larger audience. We believe this will be for everyone's benefit.

Caldera' Products

Our products are built from many technologies acquired from many sources. We disdain the "not built here" syndrome. Our highly-skilled engineers are not only developers per se', but also integrators, who take a variety of technologies and create from them a cohesive product that solves a customer need.

Many of our products are built on Internet-developed technologies, including Linux, and we continue to provide incentives to those developers to continue their good work. While our focus is on system software, this sometimes takes us somewhat afield in order to strengthen the technologies that we wish to build on.

We wish to participate in both the server and desktop markets for system software. We seek to develop strong products in both arenas by drawing on and building up Linux as a core technology. We understand that this also involves participating in the Linux industry as a product provider/packager, and we feel well-equipped to do this.

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