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Effective Terms and Conditions for the Digital Age

SAMPO NIGP CHAPTER

SUNY

Boards of Cooperative Educational Services BOCES of NEW YORK STATE

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Lesson 1:

Acquire & Review Information

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Cloud Types

Let us start by reviewing some examples of cloud products

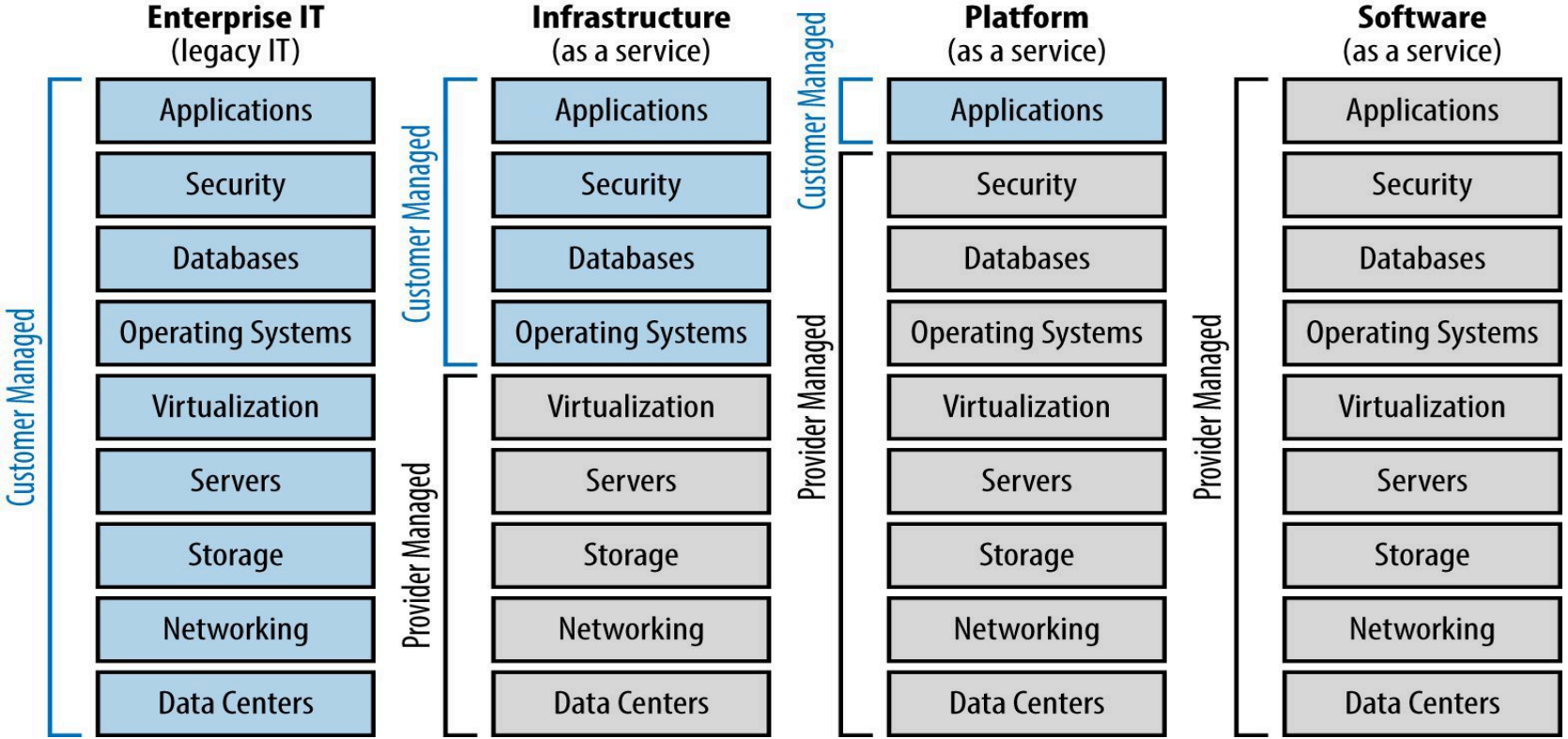
- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)
- Anything as a Service (XaaS)

Cloud Types

- SaaS
  - Also known as cloud-based software
  - Software is made available over the internet
  - Completely managed by the vendor
- PaaS
  - The user manages the applications in the service - the rest is managed by the vendor
  - Includes hardware and software tools and resources over the internet

Cloud Types

- IaaS
  - User provides everything from the operating system on up
  - Often used for custom applications
- XaaS
  - General term that refers to the delivery of anything
  - For example, Security as a Service or Healthcare as a Service


Enterprise IT
(legacy IT)
Customer Managed
Applications
Security
Databases
Operating Systems
Virtualization
Servers
Storage
Networking
Data Centers
Infrastructure
(as a service)
Customer Managed
Provider Managed
Applications
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Platform
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Storage
Networking
Data Centers

Cloud Types

- Single tenant
- Multi-tenant
- Fully hosted
- Hybrid hosted

Cloud Types

- **Single tenant**:
  - When an entity is the only tenant being serviced by a software instance within the cloud
  - This typically results in a higher price

- **Multi-tenant**:
  - Occurs when one instance of the software is serving multi-tenants or entities
  - While this option certainly costs less due to the shared architecture and databases, it is not as secure

Cloud Types

- **Fully hosted:**
  - Requires the supplier to provide the hardware space, software, maintenance, and services
  - May require separate agreements that reference each other
- **Hybrid hosted:**
  - Could result in the vendor providing hardware to the user, or the user may use their own hardware that runs the software and stores data at the user's site
  - Some of the software is hosted in the cloud while some is hosted on-site

Business Drivers

- A business driver is a resource, process or condition that is vital for the continued success and growth of a business

- A company must identify its business drivers and attempt to maximize any that are under their control

  - Needs and costs
  - Infrastructure
  - Access
  - Security
  - Flexibility

Business Drivers – Need and Cost

- **Is there a real need for moving to the cloud?**
  - Is there a solid business driver or is it simply a new and exciting product?

- **Are there real cost savings?**
  - Cost savings should take into consideration possible additional costs such as:
    - Maintaining a failover infrastructure
    - Maintaining a secondary cloud service

Business Drivers – Infrastructure & Access

- **Can the current infrastructure support the cloud?**
  - Is there sufficient processing server power, storage space, bandwidth, network availability, uptime and stability, and security?

- **What is the need for accessibility or availability?**
  - Consider how critical the application is to the business unit.
  - What are the consequences if it is down for five minutes, an hour, a day, a week?

Business Drivers – Security

- **Is the organization able to provide the security requirements needed to facilitate the cloud solution?**
  - Does the cloud solution require special clearances, building modifications, etc.?
  - What does the cloud solution require that the organization does not have or chooses not to provide?

Business Drivers - Flexibility

- **Do we need flexibility?**
  - Flexibility typically comes in two methods:
    - Pay for capability
    - “Ratchet up”
  - Typically, the cloud supplier can spread the cost over many customers, but sometimes you are the “loss leader”

Stakeholders

- Stakeholders are:
  - Those people/departments that will help you research and gather information
  - Those that you will need approvals/buy-in from in order to proceed

- To work effectively, you all must be on the same page

Various Types of Stakeholders

- **Strong technical knowledge**
  - Work with them to get well-considered requirements
- **Political, not technical**
  - The political side is often moved by forces not related to technical needs
  - This may include economic or social considerations
  - Factors such as experience or successful track record do not always enter the discussion
- **Not political, not technical**
  - Typically, the easiest to work with
  - Can take considerable time due to being research intensive

Obtaining Approvals

- **Information security officer (ISO)**
  - Individual responsible for maintaining operational security
  - Ensures the client has done the appropriate homework regarding data and data security
- **Budget officer (BO)**
  - Individual responsible for ensuring the client has the financial means for the purchase
  - Budgeting for cloud products is different than budgeting for other technology products:
    - Configuration errors are easy to make and can lead to additional costs
    - Monitoring is necessary as improper usage can also lead to additional costs

Obtaining Approvals

- **Project manager (PM)**
  - Cloud project management differs from standard software implementation and management. Cloud PMs must:
    - Ensure that failover is held in consideration
    - Remember a cloud provider's business model is to make it hard to for a customer to leave, therefore tools and structures for exits should be built in from day one
    - Understand and retain the cloud life cycle process

Gauging Stakeholders' Understanding

- Cloud types
- Security
- Time frame
- Data location
- Data classification
- Access to data

Gauging Stakeholders' Understanding – Cloud Type

- **What type of cloud is it?**
  - Can they describe the solution fully enough to build requirements?
  - Is it IaaS, PaaS, SaaS, XaaS, single vs. multi-tenant, full vs. hybrid hosted?
- **Private or public cloud?**
  - Private cloud: your data is separated from everyone else's
    - You have a great deal of control over a private cloud
  - Public cloud: your data may be mingled or logically separated

Gauging Stakeholders' Understanding – Security and Timeframe

- **What laws or security provisions apply?**
  - For example, all governmental entities are responsible to meet the National Institute of Standards and Technology (NIST) guidelines
  - Specific types of data have specific rules

- **What is the timeframe?**
  - Cloud can be faster to deploy than software
  - Cloud systems rarely adapt to user's processes
  - Modification of procedures may require a lengthy process

Gauging Stakeholders' Understanding – Data Location

- **Does data have to stay in the continental United States (CONUS)?**
  - Data may need to stay in the CONUS for security reasons
    - However, what security factors are gained by keeping data in the United States?
    - Is CONUS required for legal reasons?
  - Unless CONUS is required by law, you may be significantly overpaying
    - You also may be restricting excellent options from your pool of potential offerors

Gauging Stakeholders' Understanding – Data Classification

- Used to help determine what data you have and what risk that data may pose
- The tool poses a series of questions to determine what risk the release of the data would have
  - Monetary
  - Political
  - Reputational
  - Trust
- The key is the team must know their data and know what laws apply

Gauging Stakeholders' Understanding – Access to Data

- **Who can access the data?**
  - Reach an understanding with your cloud supplier and reseller for who can access the data
  - You must consider how they are background checked, how they are trained, etc.

Research

- Suppliers
- Total cost of ownership
- Risks vs. Rewards

Research - Suppliers

- Verify what suppliers say they can do
  - Dominant suppliers
    - Determine the dominant suppliers in the U.S. and who their customers are
    - Get a feel for where your need fits in the marketplace
  - Other suppliers
    - Determine the advantages of a major supplier versus other suppliers
    - Also determine the trend services are moving towards

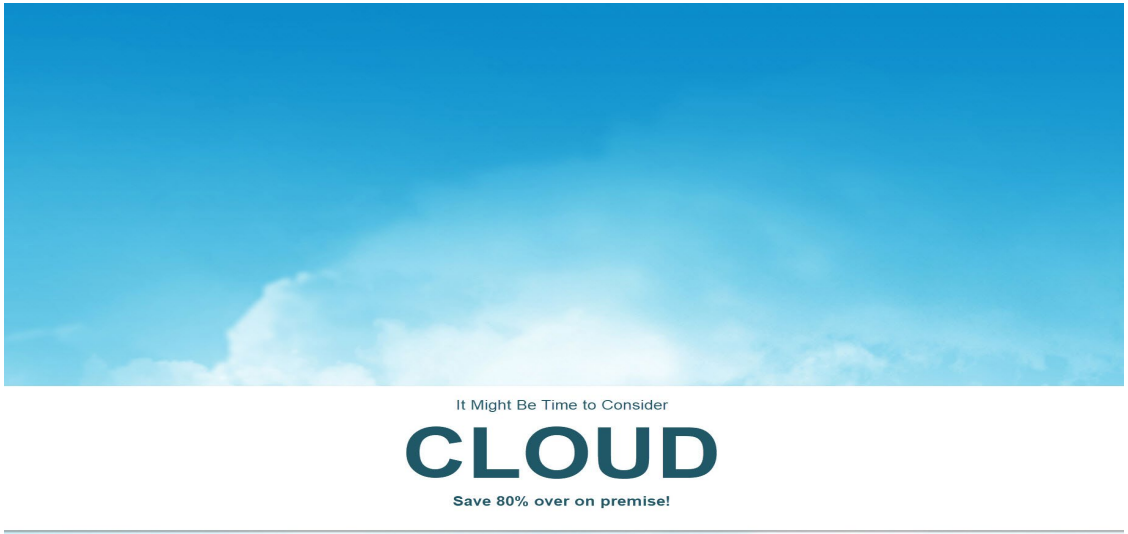
Research - Total Cost of Ownership

- **Hard Costs**
  - Generally, hard costs are costs that are fixed
  - Costs of the product itself - these may be one-time only costs or yearly recurring costs
  - You may need to pay for storage
- **Soft Costs**
  - Soft costs are costs that are variable
  - A cloud system rarely is built for you; you must adapt to fit it
  - There are process reengineering costs, retraining costs, form conversion costs, data conversion costs, and other costs at making your system fit to a new solution

Research - Risks vs. Rewards

- Some rewards for going into cloud include:
  - Cost savings
  - Handing problems over
  - Cloud is new and exciting
- Some risks for going into cloud include:
  - Cloud advertisements
  - Business continuity
  - Cost of going cloud
  - Cloud is confusing
  - Handing over data – privacy and security
  - Potential loss of data
  - High cost to leave

Risk - Cloud Advertisements



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Risk - Business Continuity

- The vendor's business continuity/disaster recovery plan may say that they are back up and running in 4 - 6 hours
  - Does not mean your application will be back up in that time frame
  - The time it takes depends on factors such as:
    - Customer size – the # of users
    - Expansiveness of the cloud system
  - During the outage, any data entered may be lost
    - Depending on the terms, the loss of data may not be the responsibility of the cloud supplier

Risk – Cost of Going Cloud

- First look at cost and start with a cost benefit analysis
- In general, cloud does save you money with some precautions:
  - Critical systems should be mirrored by a second supplier or environment
  - A failover infrastructure may need to be maintained
  - Security analysis and periodic review are critical

Risk - Privacy and Security

- Your data is valuable
- The information it contains can be invaluable
  - To mitigate this:
    - Have your security stakeholders involved on day one
    - Have contractual terms and a clear understanding of who is responsible for what at all times
    - Ensure good background check policies are in place
    - Ensure strong encryption is implemented whenever the data is accessed or moved in quantity
    - Get immediate notification upon incident or breach

Risk – Potential Loss of Data

- Suppliers may not be liable for lost data
- Even the most expensive cloud solution in which they mirror the data can still lose data in the transition
- You may still want to keep an infrastructure on hand
  - A rule of thumb is enough to support your 2 - 3 most compute intensive applications running at maximum load simultaneously
- Remember they are sharing their source code with you, so they are taking a risk on you as well

Risk - High Cost to Leave

- Data may belong to a supplier at the end of a service term and customers do not have negotiating power at that point
- This risk can be mitigated with language added to terms and conditions
- Even if you have language to retain ownership, suppliers may have created additional exit services
  - These may include data extraction specialists, data transfer technicians, or even data line fees for removal of data

Risk - Cloud is Confusing

- The cloud is not a clearly defined space
  - Jurisdictions change and rules change constantly.
  - If you give them your data, can you get it back, who will they share it with?
  - What's the total cost of going Cloud?
  - How do I avoid loss of data?
- All these risks can only be controlled in two ways:
  1. Strong contract terms
  2. Good vetting practices

Lesson 2:

Develop the Cloud RFP

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Determining Factors

- There are three major determining factors for cloud procurements
  - Laws
    - Where can data go?
    - What level does data have to be stored at?
  - Features & requirements
    - Work with clients to determine the requirements
    - Then determine if it exists
  - Pricing structure
    - To issue a solicitation, you want to be able to do an apples-to-apples comparison when you get offers
    - To do that, you need to understand the pricing, or the structure of pricing

Consider Other Methods

- Invitations for bid (IFBs)
  - IFB is possible, but your requirements had better be rock solid and 100% defendable - that is not always easy to pair
- Piggybacking & Cooperative Contracts
  - Look carefully at the administrative fees charged by purchasing cooperatives and the terms and conditions
  - Some entities are simply not allowed to utilize this method for cloud-based purchases

General Considerations for all Cloud Types

- **Conducting background checks**
  - Anyone that has access to your data should be subject to background checks
  - Type of data determines the type of background check needed
- **Vetting resellers and 3rd parties**
  - Resellers and 3rd parties may be directly responsible for configuring features and tools that protect your data
  - They should have the skills and training required to ensure your data remains safe

Considerations Specific to Cloud Types

- Each cloud type has specific demands and roles on each party
- Failure to understand is the cause of most contract breaches
  - **IaaS:** You have the most control compared to the other types - the supplier is responsible for the physical security of servers while you are responsible for logical security of the servers
  - **PaaS:** You only control the application - the supplier takes responsibility over most services
  - **SaaS:** The supplier has most of the responsibility - therefore, you are placing all your faith in their hands
  - **XaaS:** This type of service can range from full GPS vehicle tracking systems to hardware as a service - therefore, you should view this as a sliding scale

Drafting Flexible Terms and Conditions

- With cloud, you are purchasing a fluid process rather than a static product
- With static features and terms and conditions, you end up with a product that cannot adapt
- Terms and conditions must allow for product adaptations as threats evolve and as your usage changes

Drafting Terms and Conditions – Defining Cloud Terms

- It is important to define what is needed in a procurement
  - Much of cloud is not based on industry standard definitions
  - A cloud supplier may view a term differently compared to the procuring entity
  - Some examples of terms you may want to define are Data, Data Mining, Data Breach, and Data Retention

Drafting Terms and Conditions – Disposal & Transfer

- You may wish to explore cryptographic erasure
  - This means encrypting a hard drive and then discarding the key
- You may want to or not want to purchase hardware at the end
  - What is the discounted rate at which the equipment will be purchased?
  - Should be negotiated into the contract
- How will disposal be different for single tenant versus a multi-tenant?
  - In single tenant, disposal is expensive but doable
  - In multi-tenant, may be complex or impossible to disentangle data

Drafting Terms and Conditions - Disentanglement

- Think about the next solution while preparing the first
  - Lock in a fixed cost for transitioning
  - Write terms and conditions that ensure the supplier will cooperate with any data transfer
  - Fix any consulting costs in place
  - Build in any application programming interface (API) or virtual private network (VPN) that will be needed to access data or transition data

Example disentanglement language: “Unless a cost is provided for services required to transfer data and customer data within this RFP response, then the service shall be provided at no charge.”

Functionality Matrix

- To create clear specifications, it may be helpful to utilize a functionality matrix
- It is sent to suppliers with the requirements already listed
- Suppliers then use the available code responses to determine how their product addresses your needs
- Typically, a supplier will meet some of your needs, need to incorporate some third-party software, and require some customizations

Functional Category: System-Wide

Available Response Codes

F	Provided fully functional out of the box or with configuration (no custom development)
CU	Customization/Software Enhancement (Any custom development)
TP	Third-party Software Required to Fully Provide Requirement (Third-party Software Must be Proposed
SR	Provided with Standard Report or Reporting Tool
CR	Custom Report Development Required
N	Not Included in this Proposal

Reference Number		Functional Requirements	Response	Module(s) Sub-Module(s) Required to Fulfill Requirements	Comments
		INTEGRATION AND ARCHITECTURE			
sw	1.00	System has fully integrated suites/modules/applications compliant with PCI, HIPAA, etc (If not integrated, please specify which modules are not integrated.	F		
sw	2.00	Software uses workflow to electronically route documents (and route/sore approvals across all:			
sw	3.00	Human Resources	F		
sw	4.00	Modules	F		
sw	5.00	Applications	F		
sw	6.00	System Toolsets are available for the following:			
sw	7.00	Workflow	F		
sw	8.00	Report writing	F		

Drafting Terms and Conditions – Outlining the Current Environment

- When outlining the current environment, include the following:
  - **All known integrations:** The integrations can be numerous - a lapse in security to one may be a threat to all
  - **All APIs:** List all applications that may transmit data to this system, then determine which of those sources will be required immediately and which at some future point
  - **Staff / personnel load from the customer side:** Think about how many end users you will have, and also consider the future

Drafting Terms and Conditions – Including Data Classification

- Earlier we discussed how a data classification tool can be used to assist end users in determining risk
  - Regardless if step was taken, the entity must review data and determine the impact to the entity if the data were breached
  - This data study must be done by the data owner who knows what is in the data and the laws surrounding the data

Drafting Terms and Conditions – Data Storage Types

- Consider the type of data storage needed
- For example:
  - **Hot storage:** Works best when needing instant access to data
  - **Cold storage:** Works best when needing monthly or less frequent access to data

Service Level Agreement (SLA)

- For SLA requirements, list what is acceptable for:
  - Up-time
  - Response time
  - Resolution time
  - Escalation factors
- Let us review each of these

Up-Time

- **Up-time** is the time that the system is available to the end user and fully functional
  - Most entities will negotiate for the highest level that can be afforded
    - 99% = 15 min per day 3.6 days per year
    - 99.9% = 1.5 min per day 8.75 hr. per year
    - 99.999% = 5.25 min per year
  - The entity can attempt to leverage damages against the supplier if these up-times are not maintained

Response Time & Resolution Time

- **Response time** is the time that is allowable for the supplier to acknowledge the call or ticket
  - Depending on the solution, some entities will negotiate an immediate response time
  - As the response time lengthens, the price usually drops
- **Resolution time** is the amount of time that the supplier has to resolve the problem once a call or ticket is received
  - One strategy for resolution time is to separate calls into categories
    - **Red:** This is critical functionality in the system
    - **Yellow:** This is urgent functionality in the system
    - **Green:** This is functionality that is important, but not critical or urgent

Escalation Factors

- **Escalation factors** outline how issues with the functionality or non-functionality of the system will be escalated by the supplier to achieve the SLA
  - If all factors are escalated to the highest level of resolution all the time, the price will be impacted

Method of Award

- Must be carefully crafted based on research
- Ensure all costs and options are included
- May includes services added during the contract period
- May want to lock hourly additional consulting service rates in place

Cloud Licensing

- Typically mirrors on premise software licensing
- Starts with identifying licensing type
  - Per seat, per named end user, etc.
- You need to see what that cost is to determine scalability and fairness of your financial award
- Watch as the contract evolves over time, cloud pricing changes
- Technical staff and procurement must be aware of the licensing structure and changes should be studied

Warranty, Maintenance & Support

- With cloud, all should be inclusive
- Should be included with any hardware that is part of the solution
- The supplier may push back or limit their responsibility to reduce liability
- There are different levels of support
  - Initially you need significant support
  - When the system undergoes upgrades, some services are needed
  - Only you can determine if the increased support will be worth the increased cost

Delivery Milestones

- Unlike software or hardware, you may have to pay immediately
- However, implementation services should be paid by deliverable milestone basis:
  - **10%:** Implementation plan that includes timeline, staffing plan, etc.
  - **10%:** Data conversion, which includes data migration and data cleanup
  - **10%:** Load testing
  - **10%:** End-user testing
  - **10%:** Training
  - **30%:** Go live
  - **20%:** 90 days burn-in period

Managing Costs

- By making the project deliverable-based you pay only when each portion of the project is completed
  - Each deliverable should have a fixed price
  - You can set the deliverable schedule in the terms and conditions or allow bidders to propose a schedule as part of their bid
  - Consulting is a high profit industry by nature, using a deliverable-based approach can help manage this cost

RFP Review

- Compare the RFP with the functionality matrix
- Every item in the matrix should be listed as a requirement
- A good strategy is to ask a third-party to peer review for you
- Consider a request for comment (RFC) if you have the time

Questions?

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